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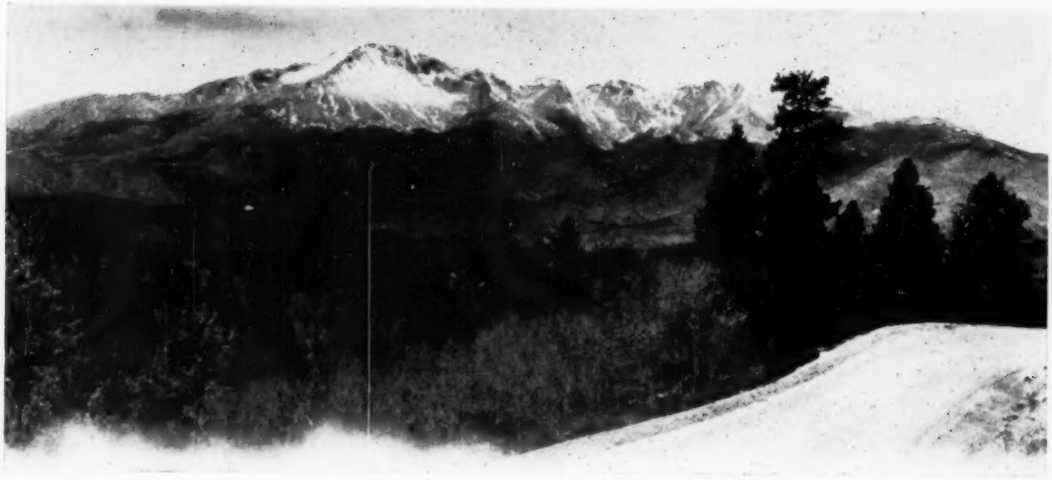

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Volume 51
Number 7

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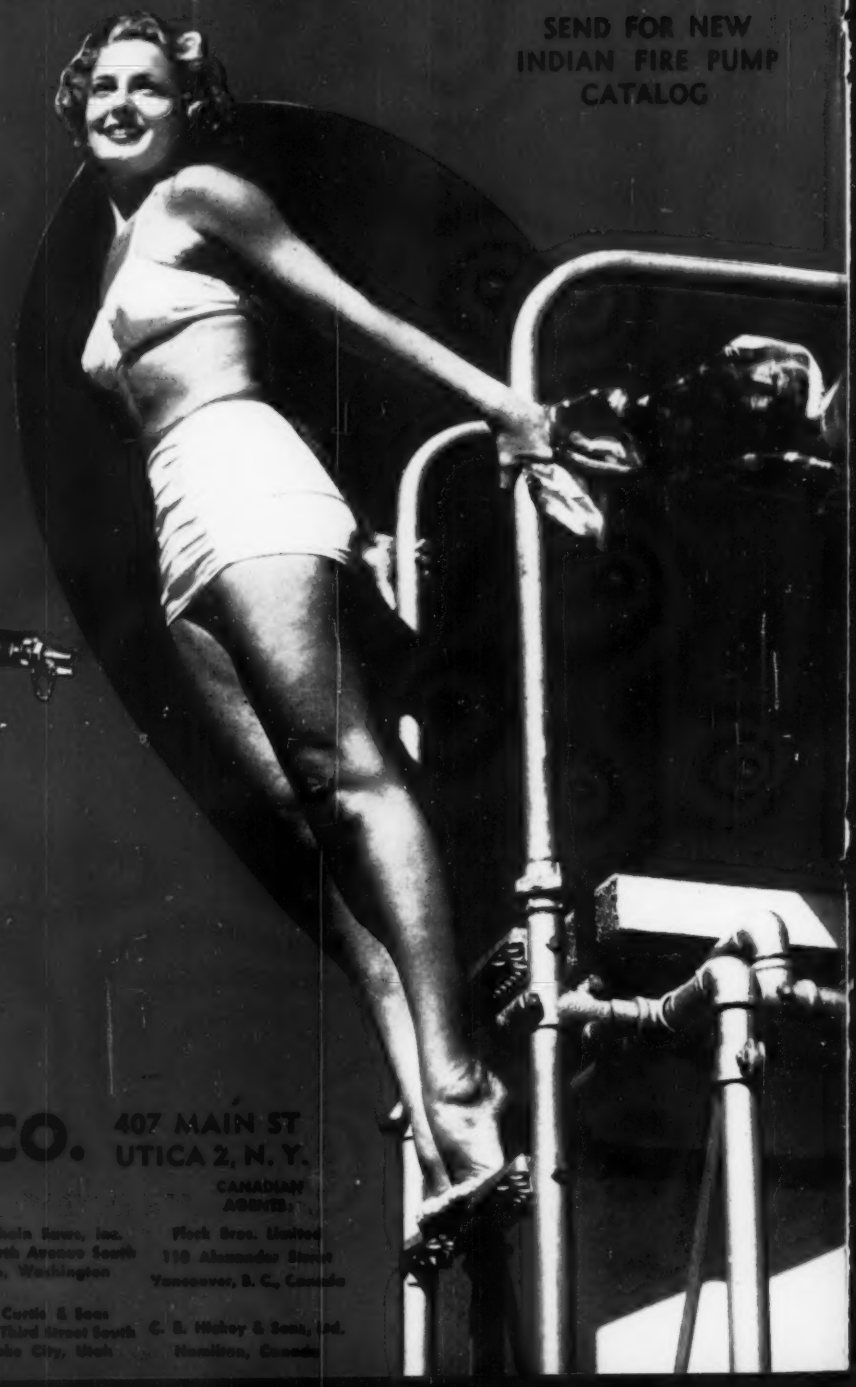

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CONTENTS

COVER: Rocky Mountain Scenes.
Photos Courtesy Colorado Springs Chamber of Commerce

Forest Research Today ..... *Hardy L. Shirley* 483

The Importance of Timber Quality as a Goal in Silviculture ..... *Clifford H. Foster* 487

Integration of Lumber and Pulpwood Use in Northeastern Hardwoods *W. Arnold Hosmer* 491

Are there Natural Loblolly-Shortleaf Pine Hybrids? ..... *Bruce J. Zobel* 494

Prescribed Burning as a Tool of Forest Management in the Northeastern States 496
Silas Little, Jr.

The Utilization of Hardwoods in the Lake States ..... *Fred E. Dickinson* 500

The Effect of Seed and Stock Sizes on Survival and Early Growth of Ponderosa and Jeffrey Pine ..... *H. A. Fowells* 504

Recreation Plans for the Superior National Forest ..... *Galen W. Pike* 508

Notes 511
More on Commercial Forest Tree Species; Basal Area by the Thumb.

Points of View 512
Technical Articles and the JOURNAL OF FORESTRY

Reviews 514
Tall Timber Pilots

Current Literature 515

Society Affairs 516

Forestry News 540

Constitution and Bylaws ..... Special Supplement

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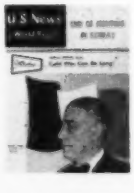

WORKING IN THE PACIFIC NORTHWEST TO CREATE A PERMANENT FOREST INDUSTRY

Journal of Forestry

Official Organ of the Society of American Foresters

Forest Research Today[1]

Hardy L. Shirley
Dean, State University of New York, College of Forestry, Syracuse.

FUTURE United States historians may be expected to cite the following events as especially noteworthy in the decade 1946 to 1955.

The acceptance of responsibility by the United States for world economic and political leadership and the expression of this through financial and technical aid programs to nations throughout the world.

The deterioration of relationships between the United States and Soviet Russia, and acceptance of collective security as exemplified by United Nations action in Korea.

The decline of colonialism in the British, French, and Dutch empires and the efforts on the part of the United States to create strong, autonomous, democratic governments in the Philippines, Japan, and elsewhere.

But in retrospect, the reconstruction, technical aid, and collective security programs may appear as but facets of a broader struggle — a struggle between those who seek to establish world order by the authoritarian rule of a police state, and those who seek instead a world commonwealth in which individuals and nations have wide scope for independent action. They may find that the outcome of this struggle was determined largely by two factors: the degree to which the common men of all lands came to understand the aims and methods of the opposing forces; and the success with which each side was able to bring to full fruition the creative energy of scientists, scholars, and administrators.

If free nations survive the struggle, historians therefore may well conclude that the most significant event of the decade was the enormous expansion of scholarly research and its application to human affairs.

In the United States the growth of nationwide scientific bodies has been singularly linked with periods of national crisis. The National Academy of Sciences was formed during our Civil War, the National Research Council during the First World War, and the temporary Office of Scientific Research and Development, out of which grew the National Science Foundation, was organized to mobilize science for the Second World War.

The National Science Foundation is the first attempt on the part of the federal government to sponsor, on a wide scale, fundamental as well as applied science, and encompassing support for outside as well as for governmental agencies. Prior to the Second World War only the land-grant colleges among educational institutions received substantial federal aid for research programs. Today such aid may go to any college, industrial laboratory, or private individual that is in a position to make a significant contribution to American scientific progress.

Sponsors of Research Today

It is not, however, the National Science Foundation that distributes significant federal funds for research today. Military agencies are by far the heaviest contributors. The Department of Defense is submitting a budget of 1.6 billion dollars for research and in addition 2 billions are asked for the Atomic Energy Commission. Industrial corporations rank second in research sponsorship. Universities, old line federal agencies, and foundations, including the mammoth Ford Foundation, grouped together rank a poor third.

To what extent are these several agencies contributing to forest research and what prospects exist for expansion of this support? Defense agencies to date have contributed relatively little to research in forestry compared with their contribution to research in engineering and the strictly military field.

Defense research contracts have gone mostly to the Forest Products Laboratory and have made up about one-half of recent laboratory budgets. A limited number of other research projects have been sponsored by defense agencies at colleges, the Timber Engineering Company laboratory, and a few industrial plants. These contracts have mostly supported short range specific projects such as laminated shoe lasts and ship timbers, crating and packaging, properties of tropical woods, and a compilation of information on forest resources to meet emergencies both here and abroad.

Among new non-defense federal support only the Fullbright Program has been of appreciable benefit to forestry. Even in this, foresters have shown only moderate interest. The National Academy of Science, National Research Council, and National Science Foundation are doing almost nothing in a direct way at the present time to further research in forestry. The Mutual Security Administration and other grant-in-aid programs

[1]Talk delivered before meeting, New York Section, Society of American Foresters, January 29, 1953.

have led to a limited amount of research on exotic woods and forest conditions in other lands.

The main support for forest research continues to be the old line government agencies of which the U. S. Forest Service, through its forest and range experiment stations and the Forest Products Laboratory has by far the largest program. Limited support is provided by the Soil Conservation Service, various agencies in the Departments of Commerce and Interior, and the Tennessee Valley Authority. State conservation departments, through the Pittman-Robertson and Dingle-Johnson laws, sponsor research on management of wildlife. Maine has done outstanding work in forest entomology, Michigan in fire control. State agricultural experiment stations, except where attached to universities with forestry schools, now play a minor role in forest research. Colleges of forestry with a few exceptions find their energies mainly taken up by teaching. However, with the drop of GI enrollment, research effort is being expanded.

The great foundations, except for the Charles Lathrop Pack Foundation, have not seen in forestry a major field for their services. It is possible that the Ford Foundation, through sponsorship of Resources for the Future, Inc., may ultimately become an important sponsor of research in forestry. The Conservation Foundation and the Institute for Public Administration have studied forest policy.

Industries and industrial associations are probably spending considerably more than half the total sum now going into forest research. Industries also have been behind such programs as the state-sponsored forest products research programs in Oregon, Washington, California, and Texas. Industrial groups in the South are getting behind substantial research programs at North Carolina State College, Alabama Polytechnic Institute, University of Florida, and other southern colleges offering forestry programs.

The brightest element in the forest research picture today is the widespread interest that individual industries and industry groups have taken in sponsoring research. Some well staffed research teams are found in individual corporations. Collectively industries sponsor the Institute of Paper Chemistry and the Timber Engineering Company. Industry groups also sponsor research at forestry colleges in various sections of the country. The programs of the Empire State Paper Research Associates and the chemical debarking projects are noteworthy. Generous industry-sponsored scholarships and fellowships are attracting men to research careers.

Expenditures for Forest Research

A survey made in 1936 and 1937 *(4)* indicated that total expenditures for forest research were in the neighborhood of $7,000,000 annually. Federal agencies spent $4,321,000; forest schools $251,000; and industry $1,000,000 to $2,500,000 mostly for pulp and paper research. A Forest Service estimate *(1)* of total expenditures for 1940 and 1949 reveals the following information:

Fiscal Year	Federal	Non-Federal	Total
	Thousands of dollars		
1940	$2,100	$ 3,600	$ 5,700
1949	5,000	11,900	16,900

Federal estimates for forest and range management research excluding products show *(7)*:

Expenditures by Fiscal Years

Fiscal Year	Federal	Non-Federal	Total
	Thousands of dollars		
1940	$1,028	$ 766	$1,794
1949	2,937	2,575	5,512
1951	3,040	3,222	6,262
1952	3,064	3,524	6,588

Thus by the year 1951 non-federal expenditures in forest and range management alone surpassed federal expenditures. If products research also had been included the federal effort would have been exceeded by non-federal expenditures many years earlier.

With an expenditure of some 17 million dollars annually, forest research represents a substantial activity. Compared with the 1.6 billions research budget of the Department of Defense and 2 billions for the Atomic Energy Commission, it seems little enough to spend on a resource embracing $\frac{1}{3}$ our land area, offering employment to almost 4 percent of our total workers, and providing income to individuals of 8 billion dollars, or 4.4 percent of the nation's total income exclusive of government payments. *(3)* If forest industries devoted as high percentage of their gross income to research as the chemical industry does, industrial support for forest research would exceed 135 million dollars annually.

Let us now direct our attention to research performance as exemplified in aims, trends, opportunities, and outlook.

Aims of Forest Research

Forest research activities in the United States have been directed towards meeting certain broad, basic problems. These might be listed as follows:

1. To know the botanical characteristics of trees and the distribution of species.

2. To understand the requirements of trees for moisture, nutrients, temperature and light, and how these influence their growth and development.

3. To understand the variability within species, its relationship to climate and soil, and the extent to which this variability is inherited.

4. To understand the relationship of trees to one another and to other plants, and to animals that occur in the forest.

5. To understand the various enemies of the forest which cause destruction of trees and stands. These include fire, insects, disease causing organisms, and to a limited extent, weather and wildlife.

6. To understand how forests can be evaluated and organized for permanent production of products.

7. To understand the various uses of wood, including its harvesting, transporting, processing, conditioning, and fabrication.

8. To understand the physical nature of wood and its relationship to the condition under which the tree grows.

9. To understand the chemical

nature of wood, and how wood may be transformed for making paper, cellulose plastics and other products.

10. To understand how forests influence the vegetation, the soil, water, local climate, wildlife, and man.

11. To understand the business and human aspects of managing forest land.

12. To understand the forest wealth of our nation and its adequacy to meet the demands likely to be made upon it.

Significant Recent Trends

As we consider these aims three points stand out. Forest research work extends back decades and even centuries into the past. Botanists, physical scientists, and economists as well as foresters have made great contributions. And emphasis in recent years has shifted to the specific rather than general problems.

In some fields of forest research today we find less effort being expended than was the case decades ago. The most striking case is research in dendrology that probably reached its peak during the time of Sargent. Fundamental research on tree diseases and insect pests of trees appears also to be lagging compared with activities of two decades ago. Research in mensuration has been virtually discontinued along the old lines that were prominent in the 1920's and 30's. Today effort is concentrated on developing the use of aerial photographs and on entirely new methodology that was introduced by James Girard. Research in silvics and tree physiology is also barely as intensive as occurred two and three decades ago.

The vast expansion that has occurred in forest research in recent years has been directed primarily towards forest utilization including the properties and uses of wood, forest engineering, wood chemistry, and national surveys of the timber resource. Substantial effort also has been spent in developing work centers to deal with the management of specific areas and types. These programs are aimed primarily at developing techniques that can be applied locally by the practitioners. They include some silvics, and silviculture, but concentrate more on management, utilization, and the business aspects of timber production.

A noteworthy trend also has been the greatly increased effort in forest genetics both at home and abroad. Following the early significant work of C. Syrach Larsen and his father in Denmark, interest in forest genetics has spread rapidly in Finland, Sweden, the Netherlands, and more recently in the United States. The new national Forest Genetics Research Foundation to promote forest genetics in the United States bespeaks the widespread conviction of both research foresters and industrialists that much can be done to improve the genetic stock of forest trees.

Are not research workers today devoting themselves increasingly to detailed studies of specific problems of limited application, to the neglect of broad comprehensive studies dealing with general principles of forest land management and utilization of forest products? To some extent this is inevitable as it is possible to generalize only to the extent that sufficient specific information is available to give substance to the generalization. Additional detailed information is essential in forest influences, in private forest economics, and in other fields before we can expect to have principles developed that can be broadly applied throughout the land.

In the field of silviculture, however, is it not time for more generalization? Studies such as the S.A.F. classification of forest types *(5)*, the Woody Plant Seed Manual *(6)*, and the forthcoming Foresters Field Manual are examples. Might it not be possible soon to prepare an equally significant study on silviculture of eastern pine forests in which the several species are dealt with as but varied members of the same broad forest formation? Similar broad studies dealing with management and economic subjects would prove of value. Might they not help to guide our policy makers toward a more realistic program of objectives?

A final trend worthy of note has been the decline in research endeavor by the forest administrative personnel and the increasing reliance on the professional research worker. The survey of forest research in the United States made in 1937 *(4)* revealed that full time research workers numbered 442, part time research workers 462, and casual research workers 565. The part time and casual workers included primarily teachers, national forest administrators, administrative workers in forest experiment stations and the Forest Products Laboratory, and workers in endowed and State supported institutions. A comparable study today would probably reveal only a limited number of forest administrators carrying research projects. Practicing foresters have given up research apparently from lack of encouragement by superiors and a feeling that modern research is too complicated an undertaking for the amateur.

Renewed Participation by Practitioners Needed

Surrendering forest research almost exclusively to the professionals has some advantages and many disadvantages. The professional's work is necessary to provide objectivity, statistical reliability, and an organization to assure that the project will not be dropped when its originator is transferred. The practitioner by contrast has a wealth of ideas based on countless observations that few professionals have an opportunity to make. Also, being an amateur he frequently brings a freshness of approach that the professional lacks.

It has taken the genius and wisdom of a Jim Girard to break the classical approach to volume and yield studies and to substitute a simpler and far more workable method. It has taken the steadfastness of purpose of a Russell Reynolds to break away from the old minimum requirements concept and to collect significant silvicultural and economic data on a forest as an operating property. Who except a forest administrator de-

voting a lifetime to a single property could have developed methods of thinning leading to site improvement, improved economy, and superior quality of products such as Mundt and Moldenhawer achieved in Denmark and von Kalitsch in Germany? Perhaps of even greater significance is the teamwork of research specialist and administrator working on producing forests such as was developed on the Chippewa National Forest in Minnesota, and on Swiss, German, and Danish forests by Burger, Wiedemann, and Möller.

Contributions of Research Workers from Related Fields

Forest research in the past benefited extensively from workers in related fields. We need but remember such ecologists as Clements and McDougal, such physiographers as Isaiah Bowman, such physiologists as Boysen-Jensen and Lundegardh, such entomologists as Hopkins, such soil scientists as Marbut and Glinka, and such chemists as Willstätter. It is gratifying today that Luther Gulick *(2)*, an expert in administration, and the National Conservation Foundation are making contributions to forest policy. Contributions by men outside the profession are especially welcome because they bring a fresh approach, a viewpoint uncolored by the forestry training, and new techniques that enrich forest research.

Needs for the Future

A major need is a broader basis of support for forest research. Dependence should not be placed chiefly on the federal government nor chiefly upon the forest industries. Government research is limited mainly to projects that appeal to congressional appropriation committees. It tends to fall into patterns that limit flexibility. Industrial research tends to be directed towards solving problems of immediate urgency rather than considering basic principles. Wider participation by colleges of forestry, independent research agencies, and the foundations, is to be encouraged. Financial aid for broadened participation should be sought from both public and private sources.

Studies that integrate the results of specific research projects of limited scope into broad principles applicable over wide areas and under a wide range of circumstances are especially desirable. These may also result in a re-examination of aims especially as they pertain to the economic feasibility of forestry.

A Forest Research Advisory Committee has recently been appointed to serve on a nationwide basis. Its membership includes representatives of industry, of wildlife, and livestock interests, of education, and of the public. Congress has repeatedly emphasized at recent hearings on appropriations the desirability of the Forest Service cooperating directly with other research agencies interested in forestry. Local advisory councils, of which only one now exists, promote such cooperation.

Outlook

No longer is forest research dominated by one agency. The number and diversity of agencies involved assures us of a varied approach to future problems. Proper balance among areas of research will probably always present difficulties. Fields deserving increased attention today include genetics, forest influences, protection against insects and disease organisms, forest soils and soil biology, and forest economics. In the products field, research in wood processing, gluing, finishing, and perhaps more significant in design with wood is urgent.

The outlook for forest research is bright because of the phenomenally rapid progress of private forestry in the past 7 years. In no period in our nation's history has forestry on the ground been applied more rapidly. This portends that forestry is approaching the period when intensive rather than extensive forestry will be the money maker.

We can expect forest research to continue to be concentrated in important research institutes and centers, and increasingly to be carried on by professionals. But unless every forester realizes that he has both the opportunity and the obligation to make some contribution in forest research, small and limited in its application though it may be, research will move far less rapidly than it should. The growing field of employment for foresters greatly widens the opportunity for everyone to share in the intellectual excitement that comes from planning and carrying through a successful research project. By so doing, our profession can move forward rapidly toward meeting the responsibilities that industry, government, and the peoples of other lands are placing before American foresters.

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The Importance of Timber Quality as a Goal In Silviculture[1]

Clifford H. Foster
Director, Charles Lathrop Pack Demonstration Forest, Warrensburg, N. Y.

TIMBER GROWING has become a fixed policy with many of the large wood-using industries. Many have acquired forest properties to provide a future supply of necessary raw materials. The idea of using all trees and all parts of all trees to make single products such as box boards or pulp, is going out. We see more integrated utilization. Some pulp mills are now selling choice logs or veneer bolts, too valuable for paper making, to furniture factories. The gap in price between select and common grades of lumber is becoming wider. All this evidence points to a growing scarcity of trees of good quality. The emphasis in forestry is passing from volume production to timber quality.

Timber quality, unlike Shakespeare's mercy, does not drop like the gentle rain from heaven, upon the trees beneath. It only comes from silviculture.

For the past 25 years, as director of the Pack Demonstration Forest at Warrensburg, N. Y., I have had an opportunity to become quite familiar with the growing of one of America's finest timber trees, Eastern white pine. We have gradually evolved a silvicultural system for growing this fine and very adaptable tree, which we call the continuous shelterwood method. It is designed to obtain a maximum amount of wood — and wood of high quality — by an overlapping of age classes in a two-storied forest. It has the advantages of the short as well as the long rotation. It is flexible and can be readily modified as to timing.

For the purpose of illustrating the principles of quality increment growth, I must quite naturally draw upon my experience with white pine silviculture in eastern New York. Since the early 1930's, we have had a growing awareness of the importance of timber quality in white pine management. By timber quality we mean the end result of all the many factors that influence the growth of a fine tree. These include straightness of stem, the accumulation of a substantial outer zone of clear wood over a slender, internal cylinder of sound knotty wood, freedom from decay and other defects, thus producing a tree of the best technical qualities. We began to favor the finest trees in marking. As years passed, it was realized that the value of the forest was being increased by the early removal of poor trees, but we had devised no means of telling by how much. Finally, in 1944, chagrined over our inability to evaluate the improvement resulting from favoring the better trees, we made a completely new forest inventory, based on tree grading rules, designed to reflect timber quality in terms of lumber grade recovery. Since 1944, a record has been kept by species, quality and size of all trees cut. In 1954, a re-inventory will be made, giving complete and accurate information of the growth of the forest for the 10-year period in terms of lumber grades. It will then be possible to know the facts, for the first time, of the results of cutting practices favoring the better quality trees.

How can timber quality be "built into" trees by the proper application of silviculture? Starting at the beginning with seedling and sapling stands, one of the basically important requirements is proper density. High density, secured by effective reproduction methods, is essential in the early years to insure excellence of timber quality at maturity. Considerable crowding is necessary to produce lateral branches of finger-size or less in the first log. Too much density will cause stagnation of growth in height and invite snow damage. White pine stands should be kept dense until branches are dead for 30 to 50 feet. This requires 40 to 60 years, depending on site quality. During this time several thinnings of a conservative nature should have been made. High density contributes to the development of tall, straight trees with little taper and with small knots. The small limbs resulting from crowding are very economically removed in pruning and they heal over fast, shortening the period when heart-rot fungi are able to enter the stem. Crowding also tends to minimize crooks in the stem, caused by weevils or squirrels destroying the terminal buds.

The first measure applied to improve timber quality of white pine was the thinning of young and middle aged natural stands. The coarse, poorly formed individuals strongly competing with better trees were removed. The early removal of coarse dominants from young stands contributes to increased stand density in later years. Unless removed early, they crowd out the potentially better trees around them. This largely accounts for the high percentage of low grade lumber in old, unmanaged second growth stands.

Improvement thinnings, with no attempt to salvage trees of borderline or slightly negative economic value,[2] were avoided in the early days. Only where the immediate net return was certain did we thin. This may now be regarded as a sin of omission. Too often foresters have avoided work of important future significance on the grounds that it would not give an immediate net return. Thus, because of continued neglect, too many potentially good stands have become relatively worthless. Today we believe that first thinnings in plantations or clearings in young natural stands can often be made at a small net cost and prove to be an excellent conservative investment. New chemical poisons promise cheaper young stand improvement, and seem destined to become widely used in the growing of better quality timber.

Artificial pruning is perhaps the most important direct means of improving timber quality. The con-

[1]Paper delivered at the joint meeting S.A.F.-C.I.F., Montreal, Canada, Nov. 1952.

ventional method of pruning in plantations is to prune first to 9 feet, and later, to 17 feet, leaving a knotty core usually 4-6 inches in diameter. One-log pruning cannot produce very much clear lumber per tree in a 60-year rotation. A disadvantage of this kind of pruning is in the difficulty of determining, at an early age, the right trees to prune. Many hazards to young trees cannot be foreseen when pruning is done before a stand has been thinned. When time and money has been invested in pruning the wrong trees originally, there is a strong tendency to continue to favor these trees, regardless. This is not good.

High-pruning of conifers selected in stands of 40 to 60 years has been practiced to a very limited extent. It was first applied, I believe, to Douglas-fir on the West Coast in the C.C.C. days, with the idea of developing peeler logs for rotary veneer. For several years we have high-pruned selected white pine trees in middle-age natural stands. There are, on the average, only about ten such trees per acre. These are typically found in the co-dominant crown class several feet below the height of the dominants. They have been forced to grow tall and slender by crowding. Like the pigs raised behind the summer hotel, with no care or attention, they have struggled to live and grow somehow. At middle age they are long and skinny and of little sale value. But the frame is there, and after proper fattening up they quickly become surprisingly valuable.

These selected white pine trees are typically 7 to 12 inches d.b.h., with from 30 to 50 feet of dead length, small limbed, straight, tall and slender. These are pruned most economically by a man equipped with climbing spurs, safety belt and using a sharp 8-point hand saw. He prunes as he climbs, proceeding upward to the base of the living crown and possibly several whorls beyond. No attempt is made to prune to a measured height. Pruning stops where good judgment indicates that it should. Our experience is that a trained man with climbers can prune, on the average, 40 trees per day, to a height of 34 feet where the trees have been previously selected and banded with paint. An experienced and trustworthy man should be able to both select and prune his own trees almost as quickly. The limbs become slightly larger and involve more pruning labor as one goes higher in a tree. More labor is used in pruning second logs than first logs of the same length, and more in third logs than second. However, the net return to be anticipated from pruning second logs is greater than from first, and that from third logs, greater than from second. The reason for this is that fine, well crowded, young trees when permitted to grow to 30 inches d.b.h. or more will be reasonably well pruned naturally. The first log will contain a goodly amount of select lumber but there is not likely to be much, if any, select lumber in the third log. If the tree is high-pruned when it is under 12 inches d.b.h. and permitted ultimately to reach 30 inches there will be a large amount of select lumber in all logs, but with a much larger percentage in the third log. The money invested in pruning third logs will yield proportionately more net return than the money invested in pruning butt logs or second logs.

An additional benefit can be fairly claimed for high-pruning of white pine because of the protection afforded from the entry of heart-rot diseases. Neither the pathologist nor the silviculturist really knows very much about these diseases beyond the generally accepted fact that they enter the stem through dead branches. There is strong evidence that the vertically sawed-off end of a branch is less favorable as a seed-bed for the germinating spores of heart-rot fungi than the checks in a horizontal dead and decaying limb. Observations at the Pack Forest have disclosed no cases of red-rot originating on limb stubs pruned more than 20 years. We believe that if heart-rot fungi normally enter the stem on limbs that have been dead more than fifteen years, all pruned limb stubs will have healed long before this time. Cases of red-rot are more common originating in second or third logs than in butt logs. Infections entering high in the tree spread faster and farther than those originating in butt logs. All this adds up to a reasonable basis for belief that if a white pine tree is pruned before branches have been dead more than 15 years there is little likelihood that the tree will later become infected. Thus, if high-pruning reduces loss from heart-rots, as we believe it will, it adds materially to timber quality improvement.

It should be noted that in our continuous shelterwood system these trees later form part of the overwood partly shading the reproduction and later the sapling stands during the time they are most subject to white pine weevil attack. High shade offers effective protection to young white pine from damage caused by these insects. Early theories credited hardwood shade as being superior weevil protection. Hardwood shade however, has never been proved to be more effective than pine shade in preventing white pine weevil attack. Red-rot often enters pine trees through pine weevil injuries. Partial shading being a major factor in preventing weevil injury, a substantial improvement in the future timber quality of white pine will result from the continuous shelterwood system.

To return to specific considerations of quality in the growing of timber, the factor of size is of major importance. Production costs are lower and prices of wide select boards from large trees are much higher than narrow boards from small trees. Good trees of 24 inches d.b.h. or over have all but disappeared from readily accessible woodlands in the Northeast. Most of the large trees now left are trees of inferior quality, having been passed up as unmerchantable at the time of the previous cutting. Some such trees may be considered merchantable today but usually only a small percentage of the gross volume is usable and the net margin of profit from them is small. When by some rare chance a really large, high quality tree is found growing in a favorable location, its value is

almost unbelievably high. We have a few such trees growing on the Pack Forest today which are approximately 200 years old and contain between 3,000 and 4,000 board feet of lumber. At current prices, less the cost of logging and manufacturing some of these trees, assuming that they are sound, may well be worth $500 apiece on the stump.

Recently, a careful economic analysis was made of a 125-year-old white pine which had grown by chance under what we believe were close to ideal conditions with respect to density. Its lumber value discounted back to the standing tree at the time of cutting was $137. This tree was 30 inches d.b.h., contained 1,500 board feet of lumber and was not pruned. When it was 45 years old, it was 8 inches d.b.h. and contained 50 board feet of lumber. If it had been high-pruned at that time, it would have been worth $240 at 125 years of age when cut. We are pruning trees today which are in all respects similar to this tree 80 years ago. We can see no reason why most of them will not eventually become trees of equal size and of equal superlative quality.

Silviculturists should strengthen their economic philosophy and defend the policy of making the necessary investments to obtain timber of quality. Unless one is aware of present values of trees of high quality and believes it possible to grow such trees successfully, then he is unlikely to be able to advance the practice of forestry effectively. Unless one is first convinced of the ultimate value of the timber he is growing, he is likely to be unwilling to make necessary investments. Failure to fully appreciate future opportunities is fully as great an error of judgment as to overestimate future values.

Those who lament the passing of virgin timber may well be too pessimistic. There were plenty of poor trees and culls in the virgin stands. While it is not to be expected that we will ever grow as large trees as the centuries-old veterans of the past, surely we can grow trees of 1,000 to 2,000 board feet in 150 years or less, and far better trees on the average as to quality.

Many foresters believe that in order to meet the demands for timber during the next 100 years production must be based on short rotations. Such will surely provide pulpwood and common lumber, but will not provide timber of the most desirable size or technical quality for special uses, especially veneer logs. Pine trees, pruned one-log length, given full crown space at an early age, will produce brash, coarse grained lumber lacking dimensional stability and largely sapwood which is not satisfactory for many uses. With no appreciable interference with the aims of the short rotation, a scattered over-story of select trees, spaced roughly 40 or 50 feet apart, can be relied upon to produce a substantial amount of timber of the best quality, if permitted to grow through the following rotation period. Experience with white pine indicates that where sufficient space is provided between the crowns of the overwood, there is little retardation of height growth of the understory. Volume growth of the overwood is exceptional. All trees being crown-free, growth soon reaches a maximum for the site and is subject to little variation thereafter other than that caused by rainfall. Trees on average sites grow at an average rate of six or seven rings per inch, from 60 to 125 years. We have come to expect an average tree to grow from 10 inches d.b.h. to 30 inches d.b.h. in 60 years on favorable sites. This even, rapid growth on large old trees is an important factor of high quality timber production.

There is no evidence, that we are aware of, that there is danger of a select tree growing too fast from 60 to 125 years with respect to the technical properties of its wood. One cannot be sure at just what size or age trees of this kind will be economically mature. This will depend upon future wood markets and values. It is not, however, beyond reason to suppose that some of the best select trees might be retained even longer than 125 years to produce large veneer logs which even today are commanding fantastic prices.

This continuous shelterwood system may also be applicable to other species. Certainly the system should be tried experimentally with other promising conifers. It is also quite possible that some of our outstanding hardwoods could be grown successfully under this system. There is some evidence on the Pack Forest that hard maple, red oak, and white ash might respond favorably.

Conclusion

Finally, let us generalize further about encouraging the production of timber of high quality. It is definitely the business of American silviculturists to learn more about growing timber in respect to quality. Compare forestry to agriculture. Except for species and time the two are closely parallel. The trend in agriculture is strongly toward more and more intensive practices on the best soils and in the most strategic economic locations. It seems logical that in the long run this will also be the trend in forestry. It therefore makes sense to promote intensive silvicultural practices on the best locations. Following the same type of reasoning it is logical to grow the finest trees possible of those species, outstanding as to the technical excellence of their woods, of unquestioned appeal to the eye and possessing other superior qualities.

We are, in some respects, at the same stage today in forestry as was agriculture centuries ago. We are just emerging from the hunting stage and still rely heavily on what nature provides. European silvicultural practices, which we cherish perhaps too much, emphasize the dangers of growing trees in pure stands as causing soil deterioration, disease and insect epidemics. We should take note of the fact that in agriculture these same problems have been met and solved. Many successive and successful farm crops have grown without soil deterioration or ruination from diseases or insects. We shall have to learn to deal more directly with all such troubles. Yet, I believe that in forestry, as has been

proved in agriculture, hope for greater abundance and more economy lies in intensive practices, applied to a relatively few species of exceptional promise.

As we acquire more skill based on time tested local experience we will surely learn how to grow our best timber trees abundantly, cheaply, with emphasis on good form, vigorous growth, and high quality wood. There is much by way of encouragement to silviculturists in the new tools and the new chemicals now available to deal cheaply and effectively with undesirable weed trees and competing woody brush.

Let us never ignore the importance of timber quality as a goal in silviculture, lest future generations be forced to use more and more wood substitutes, most of which are likely to be less satisfactory and more expensive than good wood. There need be little extra investment entailed in the growth of fine quality trees. It would seem to be an excellent gamble from now on to invest in growing timber of fine quality at least until such time as there is evidence that the supply of quality wood is likely to exceed the demand. There seems little chance that this will happen in our time.

Gerhard S. Kempff (1890-1953)

Gerry Kempff was born of missionary parents in Jercod, British South India, on December 2, 1890. In 1897 he was sent to live with his grandparents in Alsace, Germany. His great-grandfather was a forester, so he learned to love the forest very early in life.

In 1904 he came to America with his parents, and became a citizen shortly thereafter. He graduated from the forest ranger school of the University of Wisconsin in 1915. He did state forestry work in northern Wisconsin until 1918, when he joined the U. S. Forest Service. He was assigned to the Priest River Experiment Station in Idaho, where he was actively engaged in forest research.

In 1927 he received a master's degree in forestry from Harvard. A short time thereafter he joined the faculty of the University of Idaho, where he taught silviculture. In 1931 he became a forest examiner for the U. S. Indian Service at Spokane, Wash. In 1934 he was transferred to the Klamath Indian Agency in Oregon. For the last several years of his life he was a mechanical engineer in Spokane.

Gerry became a junior member of the S. A. F. in 1923, and a full member in 1927. He was a charter member of the Northwest Scientific Association, a member of the Wilderness Society, and the American Association for Advancement of Science.

Gerry's passing on May 9, 1953, came very unexpectedly. Although he was not actively engaged in the forestry profession at the time of his death his first love was the forest.

He would have asked no higher tribute than to be remembered as a man with the courage of his convictions and as a forester true to his ideals. Many of us, however, who have shared the pleasure of his friendship and the benefits of his knowledge will recall him as an inspiration in the striving for better personal character, and in the advancement of better resource use.

JAMES M. TRAPPE.

Integration of Lumber and Pulpwood Use In Northeastern Hardwoods[1]

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THE GRADUAL GROWTH of successful methods of integration is one of the most significant developments of the last 15 years in the forest products industries. The basic advantage is that combining pulpwood and lumber uses makes it possible to use effectively a very high proportion of wood substance in the trees harvested. The Weyerhaeuser Timber Company, in its operations in the Douglas-fir-western hemlock region, has been notably successful in combining lumber and pulpwood use effectively. The Crossett Company in the shortleaf-loblolly pine region in Arkansas has likewise applied this method on a highly profitable basis. The experience of these and other companies indicates that the method is practicable and profitable under a variety of conditions. Their experience also indicates that it takes a number of years and a lot of hard work to get integration into successful operation.

In northeastern hardwoods the conditions are different but the opportunities through integrated utilization appear fully as great as in Douglas-fir or shortleaf-loblolly pine. The problems are probably equally rugged, possible more so; certainly the methods need to be adapted specifically to northeastern hardwoods. Traditional methods have gone part way toward an integration of lumber and pulpwood use, but they have by no means exhausted the possibilities. The hardwoods of this region have an inherent competitive advantage as a source of very high grade lumber and of equally high grade pulp. The opportunities for the further development of these competitive advantages in the interests of the entire region appear as great as those existing in the West and South. An interesting operation along these lines is currently under way in New England.

The Brown Company, under the leadership of its president, Mr. Laurence F. Whittemore, has instituted a program of integrated utilization in northeastern hardwoods. The objective is to make full use of the advantages of this method as an integral part of the operations of the company. From the lumber using side, the project has had the benefit of the leadership of Mr. Richard N. Greenwood, president of Heywood-Wakefield Company. It has been my privilege to be associated in this venture with Robert W. Andrews and Clarence S. Herr of Brown Company, and Severin B. Hendrickson and Paul Thomas of Heywood-Wakefield Company.

The Brown Company, in its operations at Berlin, New Hampshire, has built a sawmill especially designed to serve in conjunction with a pulp mill using a large volume of hardwood. The sawmill was planned to be flexible, with provision for ultimate expansion into a two-band mill with resaw, including a short carriage on one side, a full length carriage on the other, a horizontal resaw serving both, and the necessary transfers, rolls, edgers, and trimmers. Space is reserved for kiln capacity and a finishing mill with both outside and inside storage.

The sawmill (it went into production in September 1952) has a single-band mill with a short carriage, in a building of heavy timber construction. It has steam loading equipment on the log deck, a steam feed carriage with air dogs, set works and taper. The carriage is designed to take 4 to 8 foot logs up to 40 inches in diameter. The saw is an 8-foot band mill. It is therefore apparent that the mill is designed to use heavy equipment in sawing logs going up to large diameters but at short lengths, principally 4 and 8 feet. It is now probable that a horizontal resaw will be installed in the near future. Space is available on the left side of the mill building for a full length carriage and a second band mill, but the possible installation of such equipment is a question for the future.

The mill was built and is owned by the Brown Company. It is operated by the Heywood-Wakefield Company, which has installed some of the auxiliary equipment. The plan of operation is that the logs to be sawed are selected through cooperation of the two companies; they are then sawed by Heywood-Wakefield which takes ownership of the lumber at the grading and scaling point after the edging operation, paying for it on the basis of the lumber produced. The cores are not sawed out; if in the judgment of the sawyer the next cut will produce a board of No. 2 or No. 3 common, he has the core kicked off to be returned to the paper process. The sawyer is expected to saw around the log for quality and especially to get a high percentage of sap face lumber. Eventually it is expected that the logs will be barked before sawing so that bark free slabs and edgings as well as cores will be chipped for the pulp mill. Thus all of the wood substance except the sawdust is used either for pulping or for furniture and plans are under consideration for an effective use of sawdust.

The construction of a sawmill is only one step in planning for effective integrated utilization. That step provides facilities for processing the lumber component. The mill should be flexible so it can be adapted to changes in material and in markets as they may occur in the future.

Both problems and opportunities exist in three main areas: (1) the selection and segregation of wood to be sawed, (2) methods of sawing, and (3) marketing of the lumber.

Selection and Segregation of Wood To Be Sawed

The tendency under our traditional methods is to place too much

[1]Paper delivered at the joint meeting S.A.F.-C.I.F., Montreal, Canada, Nov., 1952.

emphasis on lumber or on pulpwood. For instance, in some regions of the Adirondacks with hardwood stumpage rates of approximately $35, only sawlogs judged to be worth that stumpage are brought out; material excellently adapted to pulpwood is left in the woods. On the other hand, in some regions of New England logs with a high grade lumber content are cut up for pulpwood. For the Northeast as a whole probably 20 percent of the hardwood logs that show up on log decks do not yield enough lumber to pay for the costs of sawing. And large quantities of potentially valuable pulpwood are not harvested. This situation creates opportunities for profitable development, not solely for one company, but for the region as a whole.

The job is complex. As an instance, let us assume hardwood logs yarded in tree length with a species distribution heavy on yellow birch and in sizes up to 30 inches with a few over 30 inches. The situation is remarkably like that of a steer in a packing plant. One component of those tree length logs is high grade pulpwood, but they also contain sawlogs which will yield a high percentage of FAS and Select lumber.

How is the portion of these logs which should go to the saw mill to be selected and segregated? For some species such as soft maple the answer is simple; the entire log should be cut up for pulpwood. For white ash the question may be whether there is enough to warrant selection and special handling. Under present market conditions yellow birch logs are a premium commodity which warrant handling to obtain the maximum yield of high grade lumber. The high grade lumber component is very perishable during the hot part of the summer. In handling logs from felling to cutting and from that operation to actual sawing, care has to be taken to control stain and spalt.

Under conditions of joint use, where the rest of the log will go into pulpwood, the grades of sawable logs can be held to a more rigid standard. The real test is yield on sawing out sample lots.

Tests indicate that both the quality of logs and the percentage of the tree length logs available for lumber can be substantially increased by cutting logs short, down to 4 feet. Possibly we have stuck too closely to traditional lengths of 10 to 16 feet. Many trees will yield additional cuts if they can be 8 feet or shorter. And a 16 foot log with serious bow will yield more high grade lumber in two logs of 8-foot length.

The evidence indicates that the yield in sawable logs can be increased by about 30 percent if logs are cut short. This is a controversial point on which there is bound to be difference of opinion, but I suspect the tendency in the next ten years in processing hardwoods will be toward sawing shorter logs.

Whether the selection and segregation of sawlogs occurs at the yard or at the mill, the process is bound to be complex and it is going to take time to work out the methods. The point is that northeastern hardwoods contain more high grade cabinet lumber than we have been getting out. Hardwood utilization is likely to develop toward the same kind of careful integration between lumber and pulpwood use one finds, for instance, in the Longview operations of Weyerhaeuser.

Sawing Methods

The requirements of a mill designed for integrated utilization are in general the same as those for any good hardwood mill, but there are a few special features.

The mill should be capable of producing accurately sawed lumber, and it should have facilities for sawing around a log to get the highest quality of lumber and the highest percentage of sap face lumber. The higher the quality of logs the greater is the emphasis on these factors. In the present mill the logs are of high quality. The money in hardwoods is in the top quality of lumber. These considerations are one reason for the choice of a heavy band saw.

Any head rig, band or circular, handling logs up to 30 inches has to be rugged if it is to maintain both accuracy and speed in cutting.

Second, the current high prices for logs and lumber emphasize the desirability of saving wood substance by reducing sawdust. The minimum kerf on a circular mill is $\frac{1}{4}$ inch and most of them take $\frac{5}{16}$ inch. In sawing 4/4 lumber at $1\frac{1}{8}$ inches a $\frac{5}{16}$ kerf is 27.7 percent of the cubical content of the lumber. If one allows for sawing slabs and for edging, sawdust is over 30 percent of lumber. With a band mill operating at a kerf of 9/64 inch, or at most 10/64 inch, the sawdust loss should be cut in half, with a resultant increase of 15 percent in the volume of lumber. This amounts to 150,000 bd. ft. for every million feet sawed, or 750,000 ft. on a 5,000,000 ft. mill. At current lumber prices this saving will pay for all the fixed charges on a heavy equipment mill between two and three times over.

Of course, any mill using heavy equipment has to keep its production up if costs are to be kept down, especially wages per thousand feet of lumber sawed. This requires both skill in administration and a high degree of technical knowledge on the part of those carrying executive responsibility. It also involves skill, judgment and coordination on the part of the central team — the sawyer, setter, and filer. It is true in saw mills as it is elsewhere in industry that the current high level of wages has caused a continuing trend toward mechanization. The critical question is whether enough of the potential capacity can be realized to give a substantial reduction in cost.

Horizontal resaws have shown excellent results when used with this type of logs. The log deck equipment and head rig can be used for loading and turning the logs, with adjustment for taper, producing heavy slabs and cants for sawing out on the resaw. In some instances a log can be handled with four strokes on the head rig. Some logs require more strokes and in any event lumber has to be developed on the head rig at times when the resaw is overloaded. This process of keeping a head rig in balance with a resaw puts an added

burden on the skill and judgment of the sawyer.

Short hardwood logs offer special advantages for cant sawing on a resaw. Both the bow of logs and the taper are reduced if the logs are sawed short. Also the heart may have a bow separate from that of the log as a whole. This bow is likewise reduced in a short log. As a result of all these factors cants can be made more uniform from end to end on short logs than on longer logs. In addition the sawyer can use the end of a log to show the division between sap and heart better than he can on longer logs. The decrease in slab and edging loss from sawing short logs is substantial, but it is difficult to put a figure on the amount.

Small bolts in the 10 to 12 inch range present a special problem in sawing method. Frequently they contain excellent sap face lumber. A resaw is probably the answer, especially if a technique is used of two strokes on the head rig, without turning.

Two features of sawing in connection with pulpwood use warrant mention. One is the effect on lumber quality when cores are not sawed out. If the four faces of a log are reasonably clear the core is sawed down to a point where the next cut is not considered to be worth sawing. If one face of a log is seriously defective, the rest of the log can be sawed out and the defective face left attached to the core. It is an interesting problem to determine the grade on the next cut at which cores should be taken off the saw.

One extensive sample of yellow birch logs sawed around the core showed the following grade yields. (One certainly should not count on being able to maintain grade distribution as favorable as this.)

FAS	41.8 percent
Selects	25.7 percent
No. 1 Common	20.4 percent
No. 2 Common	9.9 percent
No. 3 Common	2.2 percent

A second feature is yield per cord withdrawn from the paper process. Eventually logs will be barked before sawing, or slabs and edgings will be barked after sawing. Then slabs and edgings as well as cores can be chipped and returned to the paper process. Thus every cubic foot of wood going on the saw will appear either in lumber, pulpwood or sawdust. The cores, slabs, and edgings returned are likely to be about 40 percent, and the remainder, consumed in producing lumber, will consist of lumber and sawdust.

The effects on potential yield are interesting. If one assumes 85 cu. ft. of solid wood per cord, 4/4 lumber sawed 1⅛ inches, and sawdust at 15 percent of lumber, the potential yield per net cord withdrawn from the chippers is 788 bd. ft. One should not expect the actual yield to go so high but experience indicates that it can be approached.

As previously indicated, a sawmill designed to serve as part of a system of integrated utilization should primarily be a sound sawmill. But it has some special features which affect both the design of the mill and the sawing methods.

Marketing

In the interest of brevity, I shall not devote much attention to marketing. When this mill started operation its entire production was sold for a year ahead.

I have referred several times to logs of 4 to 8 foot lengths. The question may have arisen as to how this would affect the marketing of the product. In the first place, every cut in furniture can be made from an 8-foot log. The longest customary cut is bed rails which rough at 77 inches. A frequency distribution by lengths at one furniture company showed substantially over 80 percent of cuts at 48 inches or less. This is borne out by similar data from other furniture manufacturers.

A sample of lumber from 4-foot logs was cut clear after kiln drying in standard length of 16 to 48 inches. The distribution of clear cuts was as follows:

Length	Percent	Percent Cumulative
Inches		
48	4.9	4.9
45	41.3	46.2
42	35.0	81.2
39	3.7	84.9
36	5.0	89.9
33	.6	90.5
30	2.6	93.1
27	.1	93.2
24	3.5	96.7
22	—	96.7
20	.1	96.8
18	2.2	99.0
16	1.0	100.0
	100.0	

Ninety percent of this lumber was in clear cuts of 36 inches or over. Over 80 percent of the demand of furniture manufacturers could be met from this stock. Corresponding data for lumber from 8-foot logs are not available but inspection of the lumber indicates it would show similar weighting on the longer cuts.

In handling shorter lumber it can be stickered at the green chain, air dried in the yard, bound with steel bands after air drying, shipped in packages, go through the kilns in packages and so to the cutting-up point. It can be handled by fork trucks from the green chain to the cut-off saw in the furniture factory.

Good furniture lumber, especially in yellow birch and maple, is scarce and is likely to become more so. If shorter lengths enable one to get 30 percent more out of tree length logs harvested, it is an obvious advantage.

Of course, every furniture manufacturer would like to use 16-foot FAS lumber. The tradition of lumber sawed at 10 to 16 feet goes back to a time when only selected logs were brought out to be sawed and others were left in the woods. Possibly we have stayed with that tradition too long.

Other Forms of Integration in Hardwoods

So far, only one method of integration between lumber and pulpwood use has been discussed. Additional methods will be developed. One method is to facilitate the production by saw mills and woodworking plants of high grade chips. These chips, if produced to the specifications of paper companies, would be a valuable by-product of woodworking plants. Until recently adequate chippers were not available, but now they appear to be and promising new models will be on the market within a year.

Barking is the principal difficulty. The industry needs barkers suitable for use in sawmills.

Transportation of chips by truck or rail offers more promise than shipping slabs, cores, and board ends. A movement toward the transportation of chips has developed in many parts of the United States and Canada, much of it by rail under favorable rates.

Developments along these lines can increase the profit of wood-using plants and provide additional resources for the paper mills in the area.

A second method is to sharpen up provisions for the exchange of logs between specialized plants so each gets the type of material it needs.

Summary

The most effective methods are going to begin back in the woods at the point of harvest. The objective is clear — to make the most effective and profitable use of all wood harvested. The integration between lumber and pulpwood use in hardwoods needs to be conceived in large terms. It can become one of the most significant developments in the use of forest resources of the Northeast.

Are There Natural Loblolly-Shortleaf Pine Hybrids?

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DURING RECENT YEARS there has been considerable interest in hybrids among various species of pines. A number of species crosses have been made throughout the world; the results of many attempted crosses made in this country are listed by Righter and Duffield (*5*). Some of these crosses seem to have a great deal of promise but in only a few cases have the hybrids attained sufficient age in field tests for foresters to be certain of their value as forest trees.

Some pine hybrids occur naturally in the forest, arising by chance cross-pollination. Many of these natural hybrids can be valuable in aiding us to visualize how the artificially produced hybrids will grow and how they will look as mature trees. Several studies on our native natural pine hybrids, including those by Chapman (*1*), Moss (*4*), Mirov (*3*), and Zobel (*7*), have been of value to an understanding of the species crosses concerned.

In the southern pine region, natural pine hybrids are rare according to Wakely (*6*), Dorman (*2*), and others, with the exception of Sonderegger pine, a natural cross between longleaf and loblolly pines (*P. palustris* Mill. × *P. taeda* L.). The question now posed is whether Sonderegger is the only frequently occurring natural hybrid among the southern pines, especially in the western portion of the southern pine region.

In East Texas, there are numerous intermediate forms between loblolly and shortleaf pines (*P. taeda* L.) and (*P. echinata* Mill.) which cannot be precisely classified as belonging in either species. While making cone collections for forest genetic research, the author found occasional trees with intermediate characters, or characters part of which belonged to shortleaf pine and part of which belonged to loblolly pine. One tree in Angelina County, Texas, will

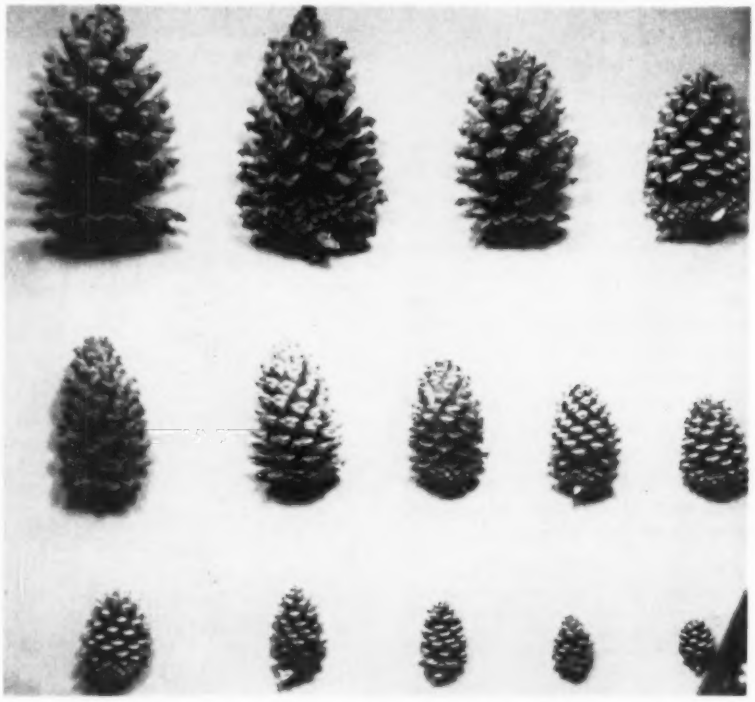

FIG. 1.—Variations in cones among the native pines in East Texas. On the right of the top row is a cone from Sonderegger pine (loblolly x longleaf), and at the right of the second row and on the left of the bottom row are cones from trees suspected of being shortleaf x loblolly crosses. The remainder of the cones are "pure" longleaf, loblolly, and shortleaf. Other characteristics show the same degree of intermediacy as is shown by the cones.

serve as an example of those encountered. From a distance this tree had the limb form typical of shortleaf pine in East Texas. However, it was growing in a low moist site, completely different from other shortleaf pines in this area which are largely restricted to the drier sand ridges. The bark was intermediate between the two species, as were the cones, seeds, foliage, and buds. Cones and seeds of this tree were shown to several persons in the South who were familiar with loblolly and shortleaf pines and all reported they would be at a loss to classify them definitely. Seedlings raised from seed of this tree are at present intermediate in growth and general appearance and look similar to some artificially produced hybrids between these species growing nearby whose seed was supplied by the Institute of Forest Genetics. The majority of professional men commented on their own occasional confusion and a few were outspoken on the idea that there is a natural hybrid between loblolly and shortleaf pines.

In 1929, the late Mr. Budde of Conroe, Texas, collected seed from a tree he felt was a hybrid. Seedlings produced from this seed were planted in several locations throughout the U. S. Reports state the trees appear much like loblolly pine. However, those growing on the Jones State Forest near Conroe (22 years from planting) appear, on casual observation, to be intermediate, but have an exceptionally poor rate of growth. They have been almost completely overtopped by both shortleaf and loblolly pines that seeded in after the plantation was established.

From the botanical viewpoint, the apparent overlapping illustrated by the above examples means one of two things: The intermediacy found between these species may be due to large inherent variation within each species, resulting in an overlapping of characters; or it may be due to hybridization and resultant backcrossing and segregation between these two species. A positive answer cannot be obtained until an intensive study is made of the parent species to determine their limits of variability, and then to see if the intermediate forms fall within these limits. Such was done for lodgepole and jack pines by Moss (*4*) and for Coulter and Jeffrey pines (Zobel, *7*). As far as can be determined from the literature or from personal communication, no intensive study of this type has been made of loblolly and shortleaf pines.

One of the chief barriers to natural hybridization between these two species is the difference in time of flowering. Commonly, conelets are receptive and pollen is shed in March for loblolly pine and in April for shortleaf (Wakely, *6*). During the 1952 pollination season, however, the authors and others noted a number of examples where shortleaf conelets were receptive while loblolly pine pollen was still being shed. It was also noted that in a normal cluster of catkins sometimes one or two would for some reason be precocious and would grow and mature rapidly, shedding their pollen while the remainder of the male "flowers" were just beginning to grow. In addition, a difference of flowering time of several days to several weeks was found for trees of the same species.

Keith Dorman, of the Southeastern Forest Experiment Station, stated, in a personal communication, that for slash pine, exceptionally cold weather during the flowering period caused female cones to mature slowly while male cones matured and shed all their pollen before the female cones were receptive. Thus, years with freak or unusual weather might bring on a situation where a large amount of inter-species pollination could occur.

The foregoing observations may serve to arouse interest in this interesting and important problem in pine genetics and taxonomy. Such a problem might well be studied by a properly qualified graduate student who could then answer the question "Are there natural loblolly-shortleaf hybrids?"

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Prescribed Burning as a Tool of Forest Management in the Northeastern States[1]

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ECOLOGICAL studies have indicated that fires may have a role in maintaining several forest types of commercial importance in the northeastern United States.[3] These types include eastern white pine (*2, 5, 11, 21, 23*), red pine (*6*), pitch and shortleaf pine (*2, 11, 22, 24*), loblolly pine (*1, 4*), Atlantic white-cedar (*15*), black spruce (*8, 12*), and paper birch (*8, 31*). (While not all the papers mentioned are based on work in the northeast, the results or statements therein indicate a possible role for fire in the specific types.)

A publication (*9*) issued by the Bureau of Forestry, U. S. Department of Agriculture, in 1903 advised woodland owners of southern New England as follows: "It sometimes happens that pine seeds do not germinate on a dry matting of needles and leaves. Under these circumstances reproduction is assisted by burning off the surface litter." For most of the types where fire may have a role in forest management, no more definite statements could be made today than that made 49 years ago.

Actual use of fire in the northeast has largely been restricted to New Jersey and Maryland, although Smith (*28*) did try some small-scale experiments in his studies of white pine in Connecticut. Specific recommendations have been made for using fire at the end of the rotation in the Atlantic white-cedar type that is found in the swamps of southern New Jersey (*15*). But the burning there is a problem of less complexity and magnitude than it is in pine forests on drier sites. Consequently, the rest of this paper is devoted to what has been learned about fire in the pine-hardwood forests of southern New Jersey and the Eastern Shore of Maryland. Studies made in those sections have been in cooperation with the New Jersey Department of Conservation and Economic Development and the Maryland Department of Forests and Parks.

Forest Composition and Succession

Forest composition differs appreciably in these two sections. In the pine region of southern New Jersey, the forests on imperfectly and poorly drained soils are composed chiefly of pitch pine with some red maple, blackgum, and sweetbay; those on upland sites, of both pitch and shortleaf pine along with several hardwoods — chiefly bear, blackjack, white, black, scarlet, chestnut, and post oaks. On the Eastern Shore the pines are chiefly loblolly and pond pine. The hardwoods include most of those mentioned in New Jersey along with sweetgum, water oak, southern red oak, and others.

But the successional trend to hardwoods is the same. In both sections pines usually form nearly pure stands on old-field sites. These stands are common on the Eastern Shore, rare in New Jersey. When the pines are 15-20 years old, small hardwoods can be found under them. As the pines mature, the hardwoods increase in size and number so that their presence cannot be overlooked. Apparently in southern New Jersey the climax forest, if all fires were excluded, would be a mixed hardwood forest dominated by oaks on upland sites (*17*), and by swamp hardwoods on the wetter sites (*14, 15*). The climax forest on the Eastern Shore would probably also be dominated by oaks on the drier sites, by other hardwoods on the wetter sites, and would not have any pines.

Species Characteristics That Modify Fire Effects

Pitch Pine

Pitch pine has several characteristics that make it a fire species. First is its ability to survive because of its thick bark and sprouting capacity. For example, the foliage can be killed by the heat of a fire; yet if terminal buds are uninjured, trees will usually survive and the terminal shoots develop. If these buds are killed, new branches and leaders may develop from dormant buds, but there will be a crook in the bole. Sometimes no new leader develops, and the tree remains a spike-top for several years. When tree stems are killed, sprouts often develop from protected buds at the root collar. These vary in value. Seedling sprouts appear quite satisfactory; but the older the stool, the poorer seem to be the form and rate of growth of the sprouts, particularly after the first few years. Moreover, saplings and larger stems often produce too many sprouts, 20 to 50 being common, so that there is intense competition within the clump. This is most severe where repeated fires have forced pitch pine to form a flat stool on which as many as 249 sprouts one year old have been counted (*14*).

A second characteristic is the production of closed cones by some pitch pines. Apparently, as in sand pine and jack pine (*13, 27*), there is racial variation within the species. In some localities of southern New Jersey pitch pines bearing closed cones are most common; in others, pitch pines whose cones open normally at maturity.

A third characteristic is the production of seed at a very early age. Open-grown seedlings 10 years old or sprouts 3 to 4 years old frequently bear some mature cones.

Probably because of the relatively small size of the seeds, about 62,000 per pound (*30*), seedlings do not usually become established in duff layers 1 to 3 inches deep (*17, 19*). Seedlings also have a relatively slow rate of growth for the first few years, usually reaching a maximum of 0.4 foot in height during the first year on moist sites; 0.2 foot on dry sites. However, once

[1] Presented at the joint meeting SAF-CIF, Montreal, Canada, Nov., 1952.
[2] Forest Service, U. S. Dept. of Agric.
[3] In this paper the northeastern United States is considered to include the states north of Virginia.

open-grown seedlings are 1 foot tall, their rate of growth increases greatly and for a few years may average 2 feet a year under favorable conditions.

Shortleaf Pine

Shortleaf pine sprouts like pitch pine, although its sprouting capacity is less. Shortleaf apparently does not bear closed cones, nor produce mature cones until the trees are about twice as old as those of pitch pine. However, its seedbed requirements and the growth rate of its seedlings are similar to pitch pine.

Pond Pine

Pond pine is probably similar to pitch pine in most respects.

Loblolly Pine

Loblolly pine differs markedly. Sprouting in this species is negligible. Mature cones do not remain closed, although they may be produced at a somewhat earlier age than in shortleaf pine (*30*). But the big differences seem to be in seedbed requirements and seedling growth. Possibly because seeds are about three times heavier than pitch pine seeds (*30*), seedlings of loblolly pine are found on duff seedbeds in Maryland, while on comparable ones in New Jersey pitch and shortleaf seedlings are not found. Open-grown seedlings of loblolly on the Eastern Shore also reach about twice the height of pitch and shortleaf in New Jersey during the first year.

Effect of Wild Fires on Stand Composition

Because of differences in sites, species characteristics, age of stands, and intensity of fires, wild fires have produced highly variable effects on stand composition.

New Jersey

In New Jersey the most common type of stand on upland sites is a mixture of sprout oaks with scattered pitch and shortleaf pines. The oaks are usually smaller than most of the pines, since the last fire killed the hardwoods back while the larger pines survived, although with damaged crowns. These stands are considered to be in rough equilibrium with their "normal" treatment in respect to fires and cuttings. Both provide open conditions favoring pine seedlings, but the initially faster-growing oak sprouts usually prevent most of them from becoming a part of the overstory.

A second common type on upland sites is a mixture of pitch pine and scrub oak. Here killing fires at relatively frequent intervals are the apparent reason for the absence of shortleaf pine and tree oaks (as black, white, and chestnut), because these species do not bear seed at an age early enough to perpetuate themselves (*22*). Because of differences in fire intensity and frequency and in cutting, the pine-scrub oak stands vary greatly in appearance. At one extreme are the stands with old pine and scrub oaks unburned for 20 years or more; at the other, low (so-called "Plains") growth burned by killing wild fires once or twice in the last 10 to 20 years.

As a result of killing fires most of the poorly drained lowlands have stands of pitch pine sprouts. These are usually poorly formed and slow-growing.

Although wild fires have usually been detrimental to stands, particularly to their growth, some have improved the stand composition. One 1946 fire of more than 1,000 acres in a pine-scrub oak stand resulted in the establishment of several thousand pine seedlings per acre over most of the area. They apparently started from seed from closed cones opened by the fire. A deep-burning fire of about 3 acres in July 1947 favored the establishment of more than 3,500 pine seedlings per acre in a pine-lowland site. Two wild fires in the Belleplain State Forest have produced similar results. In all these cases the fire was highly destructive to the existing stand, but did favor the replacement of sprout or already fire-damaged pines and hardwoods with seedling pines. Some other less damaging wild fires have also had a favorable effect on stand composition, even though the immediate effect was chiefly on the understory and seedbed.

Eastern Shore of Maryland

On the Eastern Shore of Maryland wild fires have had somewhat different effects, partly because of differences in fire frequency and species characteristics. Only four results will be described.

1. A killing fire in a mature stand of loblolly and pond pine may result in restocking the area chiefly with pine, as happened in part of the 1941 burn of the Eastern Shore Experimental Forest.

2. A less damaging fire in a similar stand may favor hardwood succession. In part of the same burn much of the overstory survived temporarily, but there has been progressive mortality from fire and insect damage. This gradual mortality has chiefly favored increased growth of the hardwood understory, just as would have partial cutting of the pine overstory. These results are similar to those reported by Oosting in the Duke Forest (*26*).

3. Repeated killing fires would favor pond pine over loblolly because of the former's ability to sprout vigorously. This can be seen in part of the area burned in 1941 and 1951 in the Eastern Shore Experimental Forest.

4. Wild fires of relatively low intensity may burn under pine overstories and cause little or no damage. Their chief effect is on the understory and seedbed. Again this can be seen in parts of the 1951 burn of the Experimental Forest.

Effect of Prescribed Burning on Stand Composition

New Jersey

Upland Sites.—On upland sites in the pine region, the use of light winter fires in oak-pine stands has been recommended and described in previous papers (*16, 17, 18, 29*). Fires in stands where the overstory is not susceptible to serious injury (*29*) affect chiefly small reproduction, shrubs, and duff. Shrubs and duff are reduced in amount; and herbaceous vegetation is favored in the understory, particularly of fre-

quently burned, open stands. Combined with proper harvest cuttings, prescribed burns provide prompt restocking of cut-over areas with pine reproduction, since they favor the establishment of advance pine reproduction (*18*). In two separate studies the amount of pine reproduction 5 years after cutting was found to increase roughly at the rate of 500 seedlings per acre for every burn made before cutting. In both studies the areas burned 5 or more times before cutting had 3,400 to 4,800 pines per acre stocking 93 to 100 percent of the quadrats.

Even though the amount of pine reproduction established as a result of burning was about the same, the dominance is not, and the difference is due to the age of the oak overstory when it was cut. In one area the oaks were 52 to 77 years old, in the other only 24 years old. Consequently, even though cleanings were made in the fall of 1948, 3 years later the two areas had 850 and 1,167 hardwood seedlings and sprout-clumps per acre; hardwoods more than 1.5 feet tall occurred on 32 and 60 percent of the milacre quadrats; and the average height of the tallest hardwoods on those quadrats was 5.3 and 6.9 feet respectively.

Partly because of the smaller amount of hardwood competition in the old-oak area, the pine reproduction there is taller and dominates more quadrats than in the other study. In the most frequently burned plots of the old-oak area the tallest pines on the quadrats had an average height of 3 to 4 feet (maximum, 11 feet), and pines more than 1.5 feet tall were dominant on 60-64 percent of all quadrats. In the other study area the average height of the tallest pines was only 2 to 3 feet, and where both pines and hardwoods occurred, pines were dominant on only 13 percent of the quadrats.

Evidently several prescribed burns followed by a seed-tree cutting would be effective in stands of old oak and pine in increasing appreciably the proportion of pine—from 12 percent of the trees larger than 2 inches d.b.h. to about 50 percent of the next crop. Cleanings that take about 5 man-hours per acre would permit the pines to form nearly a pure stand. In contrast, in stands of young oak and pine, as in the second study, prescribed burning and the proper type of harvest cutting provide little more than the maintenance of a pine seed source—unless costly cleanings (requiring about 15 man-hours per acre) or poisoning are used. Fortunately such young stands are not usually merchantable and so are seldom cut.

In other upland stands of old-field pine or pine and scrub oaks, the use of light winter fires is considered similarly desirable (*17*), although as yet similar detailed data are not available.

Lowland Sites.—On lowland sites there are two possible ways of using fire. One would be to use several relatively light winter fires under the stand once the pines are resistant to injury. These fires reduce the shrubby understory and duff, favor herbaceous growth in the understory, and provide conditions favorable for the establishment of pine seedlings. But such fires are difficult to use properly on these sites, and if used, are probably most applicable to the relatively dry portions where deep layers of organic matter do not accumulate.

Where these do, one deep-burning fire at the end of the rotation may be the answer. For example, some tracts mostly in pine-lowland sites were prescribe-burned in September and October 1951 before pine seed fell. Temporary plots established there in July 1952 gave these results:

Type of fire	Number of 1952 pine seedlings per acre (quadrats stocked—%)			
	In pine lowland			On upland
	Wet site	Medium site	Dry site	(Pine scrub oak)
None	67(3)	0(0)	67(3)	0(0)
Light	200(17)	1,300(40)	2,533(73)	0(0)
Severe	6,700(80)	6,500(100)	22,800(100)	900(47)

The wet side had an understory of swamp hardwoods and tall shrubs (6 to 12 feet), and a thick duff or forest floor (0.5 to 0.9 foot). Medium sites had a dense understory of shrubs about 3 feet tall, a thick duff (0.5 to 0.6 foot), but relatively few hardwood trees. The relatively dry sites (on imperfectly drained soils) had very few hardwoods, a less dense understory of shrubs, and a relatively thin duff (0.25 foot). This forest floor was similar to that on upland sites.

The severe fire was highly damaging to the tree overstory, but did kill and consume practically all shrub stems except on upland sites, and also consumed most of the duff or forest floor on all sites. Where this was thick enough to permit the fire to burn deep, some hardwoods and many shrubs did not sprout. The light fires caused only about half as much damage to the tree overstory as the severe fires, usually killed but did not consume shrub stems, and reduced the forest floor by a half or less.

From the standpoint of obtaining pine reproduction, the severe fires gave highly satisfactory results on these lowland sites. The light fires were relatively ineffective, while on unburned areas only rare seedlings started, chiefly on moss-covered spots. Evidently a drastic treatment, such as a deep-burning fire, is needed in the wet portions of the pine lowlands if commercial crops of pine are to be grown in place of worthless hardwoods.

Maryland

On the Eastern Shore periodic burning during the winter under stands where the trees are more than 4 inches d.b.h. offers one possibility for checking succession and reproducing pine stands (*4*). However, no data on these effects are available at the present time.

A second alternative is the use of a hot fire before seed fall in a good seed year (*4*). This was tried last year in the Pocomoke State Forest. The stand contained, in stems 8 to 22 inches d.b.h., about

12,855 board feet of pine and 610 of hardwoods per acre. Under these were about 5,290 seedlings or sprout-clumps of hardwoods per acre, stocking 94.5 percent of the milacre quadrats, and about 920 pines stocking 22 percent of the quadrats. Tallest hardwoods on stocked quadrats averaged 8.2 feet in height, pines 2.1 feet. A seed-tree cutting was made, leaving 10 overstory pines per acre. The logging reduced the average height of the hardwoods to about 5 feet, and eliminated all advance reproduction of pine. A subsequent fire on September 10 reduced the slash-covered area from about 35 to 3 percent, the duff from 3.8 inches to 1.8 inches in depth, and exposed mineral soil or H-layer on about 13 percent of the area, compared to less than 1 percent of the area just logged. In the burn the amount of pine reproduction present in July 1952, its stocking, and height were appreciably greater than in the unburned area (7,640 seedlings per acre compared to 4,080, stocking 96 percent of the quadrats compared to 78 percent; average height of tallest seedlings on quadrats, 0.37 foot compared to 0.28 foot).

The fire also killed back the advance growth of hardwoods, eliminating some. In July 1952 the average height of the tallest hardwoods on stocked quadrats was about 2 feet in the burn and 5 feet in the unburned area. Pines dominated 20 percent of the quadrats in the burn, none in the control.

Hence, this one fire may have been effective in reproducing a predominantly pine stand, while in the unburned area such a stand can form only in the hauling roads and similar spots greatly disturbed in logging. Over the whole unburned area less than half of the next stand will probably be pine.

Effect of Prescribed Burning on Growth, Site, and Game

Foresters are interested in the effect of prescribed burning on growth, soils, and game.

As to growth, it should be remembered that in one-shot, hot-fire treatments foresters are not concerned with future growth of the present stand, but only concerned with obtaining desirable reproduction for good growth of the next crop. In contrast, in periodic burning under stands it is essential that growth of these not be adversely affected. Present available information indicates that in proper burning this is not adversely affected (*10, 29*).

The effect of periodic burning on soils in the New Jersey pine region is apparently of no practical importance (*3*). While this effect on the heavier soils of the Eastern Shore will be greater, probably the same conclusion will ultimately be reached.

Correctly handled, prescribed burning should benefit game by increasing herbaceous growth and providing new sprout growth of woody plants.

Advantages and Disadvantages of Prescribed Burning

One advantage in using prescribed burning is its low cost compared to other methods for accomplishing the same amount of seedbed preparation and hardwood control (*7, 16*).

A second advantage from periodically prescribed burning under stands is in fuel reduction. This not only facilitates the suppression of wild fires, but greatly reduces their damage. Already these highly important benefits have been observed on a few areas in New Jersey (*16, 25*).

Disadvantages in using prescribed burning are chiefly (1) in educating people to understand the varying results from fires and (2) in accomplishing the job correctly. Experience has been that the good and bad effects of fire form no more difficult and complex problem in education than similar effects from cutting. Problems in accomplishing the job of prescribed burning are (1) organizing and training crews, (2) developing experienced, qualified leaders, and (3) selecting proper conditions. Unfortunately the fire-danger meter is not a sufficiently accurate guide and the selection of proper conditions is still a matter of experience and judgment, aided by actually setting a small test fire (*20*). But experience has been that the job of prescribed burning can be done properly if adequately organized.

Consequently, prescribed burning qualifies as a highly worthy tool in the management of pine-hardwood types. Combined with proper harvest cuttings, it permits controlling the stand composition with a minimum amount of cleanings.

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The Utilization of Hardwoods in the Lake States[1]

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THE LAKE STATES, Michigan, Wisconsin, and Minnesota, have a total land area of 122.7 million acres of which 54.7 million acres, or 45 percent, is classed as forest land. Commercial forest land, capable of producing timber of commercial quantity and quality, amounts to 50 million acres. As can be observed in Table 1, the forest land area is fairly well distributed among the three states.

A number of forest types occur in the region which for sake of convenience can be classed in three major groups, namely, the northern pine group including the red, white and jack pine types; spruce-fir group which can be further broken down depending on the particular mixture of species; and the hardwood group with four major types—northern hardwoods, oak-hickory, ash-elm, and aspen (Table 2). It is with the hardwood group

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TABLE 1.—AREA OF FOREST LAND, BY BROAD CLASSIFICATION, IN RELATION TO TOTAL LAND AREA IN THE LAKE STATES REGION, 1950

Kind of land	Region total	Minnesota	Wisconsin	Michigan
	Thousand acres	*Thousand acres*	*Thousand acres*	*Thousand acres*
Total land area	122,718	51,206	35,018	36,494
Commercial forest[1]	50,000	17,000	15,200	17,800
Non commercial[2] and reserved forest[3]	4,700	2,700	800	1,200
Total, all forest	54,700	19,700	16,000	19,000

Source: Forest Resources of the Lake States Region (*1*).

[1]Land capable of bearing timber of commercial character and economically available now or prospectively for commercial use and not withdrawn from such use.

[2]Lands which appear to be permanently out of commercial timber-producing class, owing to very low productivity, excessively poor quality of timber, or extreme inaccessibility.

[3]Lands withdrawn from commercial use for parks, preserves, wilderness areas, etc.

TABLE 2.—AREA OF HARDWOOD TYPES IN THE LAKE STATES REGION, 1950

Type	Region total	Minnesota	Wisconsin	Michigan
	Thousand acres	*Thousand acres*	*Thousand acres*	*Thousand acres*
Aspen	19,500	7,600	5,900	6,000
Northern hardwood	9,400	1,200	3,200	5,000
Oak-hickory	3,900	900	1,850	1,150
Ash-elm	3,000	900	1,100	1,000
Total, all hardwoods	35,800	10,600	12,050	13,150

Source: Forest Resources of the Lake States Region (*1*).

that this paper is particularly concerned.

The northern hardwood type occurs chiefly in the northern part of the region and is a mixture of sugar maple, beech, yellow birch, hemlock, and basswood. As can be noted from Table 2, the type is more prevalent in the eastern part of the region and most of the remaining old growth stands occur in northern Michigan. This type responds well to proper management practices.

The oak-hickory type which is found in central and southeastern Minnesota, central and southern Wisconsin and southern Michigan varies widely in condition depending on the site as well as past treatment. In general the stands have suffered from poor management. Oak is the principal species.

The ash-elm type occurs throughout the region in stream bottoms, adjacent to swamps, and on poorly drained upland sites. Elm is the most important species numerically. The type is generally in poor condition as a result of being culled over for the more valuable trees.

The area of the aspen type has increased many fold in the last half century by taking over cut-over areas and today it makes up over half the total area of all the hardwood types and 39 percent of the entire commercial forest area. Much of the area now occupied by aspen formerly supported stands of white and red pine.

In all, the hardwood types occupy 77 percent of the total commercial forest area according to recent survey reports (*1*). Volume wise the hardwoods also show considerable superiority over the softwoods. In 1950, the cubic-foot volume of all hardwood growing stock considered to have then, or in the future, a significant value for products other than fuel, amounted to 14,000 million cubic feet or 70 percent of the total volume in the region (Table 3). In volume of sawtimber hardwoods likewise made up 70 percent of the total (Table 4). While more than 40 different hardwood species occur in the region, seven species or species groups comprise the bulk of the hardwood volume, namely, sugar maple, yellow birch, basswood, beech, elm (3 species), oak (7 species), and aspen (2 species).

TABLE 3.—CUBIC-FOOT VOLUME OF HARDWOOD PRIMARY GROWING STOCK[1] ON COMMERCIAL FOREST LAND IN THE LAKE STATES REGION, BY SPECIES, 1950

Species	Volume
	Million cubic feet
Sugar maple	2,900
Yellow birch	500
Basswood	700
Beech	300
Elm	900
Oak[2]	1,800
Aspen	5,200
Miscellaneous	1,700
Total	14,000
Total for hardwood and conifers	20,000

Source: Forest Resources of the Lake States Region (*1*).

[1]Primary growing stock is defined as that part of the stand which either has significant merchantable value for products other than fuel wood or has prospects of growing into material of value in the future.

[2]Approximately two thirds of all oak is red oak.

TABLE 4.—BOARD-FOOT VOLUME OF HARDWOOD SAW TIMBER ON COMMERCIAL FOREST LAND IN THE LAKE STATES REGION, BY SPECIES, 1950

Species	Volume
	Million board feet
Sugar maple	7,900
Yellow birch	2,000
Basswood	1,900
Beech	1,100
Elm	3,000
Oak[1]	5,300
Aspen	3,200
Miscellaneous	3,600
Total	28,000
Total for hardwoods and conifers	40,000

Source: Forest Resources of the Lake States Region (*1*).

[1]Approximately two thirds of all oak is red oak.

The history of the utilization of the hardwood timber in this region followed a somewhat different pattern than that for softwood timber. Whereas the pine lands were aggregated into large ownerships during the middle and late 1800's, much of the original hardwood land passed into small ownerships for agricultural purposes; however, some large ownerships did develop in northern Wisconsin and the Upper Peninsula of Michigan as a result of the activities of lumber companies as well as mining and automotive interests. The hardwood farm woodlots which are so common today in the central and southern parts of the region are a remainder of some of the original stands making up the oak-hickory type.

In general even the best stands have been culled over to secure high quality material of such species as yellow birch, maple, ash, walnut, and oak and as a result many of the stands are filled with inferior species and cull material. It is the utilization of this type of material that poses a big problem.

Present ways of utilizing hardwoods are many and varied but all too limited in the species used and the quality of material required. The production of lumber, while far below the output of approximately 10 billion board feet attained at the height of the lumber industry in this region in 1889, is still an important item. In 1947 over 5,000 sawmills were active in the region, the majority of which were small and producing less than one million board feet annually. Most of these mills operate partially or entirely on hardwood. Table 5 summarizes the quantity of hardwoods consumed in sawmill operations in 1947 with maple, aspen and oak making up approximately 67 percent of the cut. In all, hardwoods amounted to 64 percent of the total sawlog and box bolt production in the Lake States in 1947.

Hardwoods have been the principal source of material for the veneer industry in the region since its inception, and the production of hardwood veneer has been gradually increasing during the last decade or so. In 1947, 86,190 thousand board feet of logs were produced for this industry to use in the manufacture of veneers for plywood, furniture and allied products and somewhat over one-third that amount for the production of container veneer (Table 6). In 1946, 85 veneer mills were located in the region.

TABLE 5.—HARDWOOD SAWLOG AND BOX-BOLT PRODUCTION IN THE LAKE STATES, 1947

Species	Volume
	Thousand board feet[1]
Maple	253,735
Birch	78,430
Basswood	52,980
Beech	24,725
Elm	73,655
Oak	121,760
Aspen	186,955
Cottonwood	13,450
Ash	22,195
Hickory	860
Cherry	1,095
Walnut	330
Miscellaneous	4,175
Total, all hardwoods	834,345
Total, all species	1,310,570

Source: Commodity Drain from the Forests of the Lake States, 1947 (*2*).

[1]International ¼ inch log rule.

TABLE 6.—HARDWOOD PRODUCTION OF VENEER LOGS AND BOLTS IN THE LAKE STATES, 1947

Species	Commercial Veneer	Container Veneer
	Thousand board feet[1]	*Thousand board feet*[1]
Maple	33,270	8,790
Birch	23,350	1,810
Basswood	8,440	2,840
Elm	6,780	11,170
Beech	4,910	3,380
Oak	3,580	590
Aspen	3,540	750
Miscellaneous	2,320	1,055
Total	86,190	30,385

Source: Commodity Drain from Forests of the Lake States, 1947 (*2*).

[1]International ¼ inch log rule.

No particular raw material problem faces those mills producing low quality veneer but those specializing in the production of high quality veneer, mostly from yellow birch and sugar maple, and requiring the best quality logs are having increasing difficulty in procuring such material from the region.

The major increase in the utilization of hardwood has been in the manufacture of pulp. More and more the mills of the region have turned to hardwood as a source of raw material. In 1950 aspen accounted for approximately 37 percent of the total volume of pulpwood produced. Only a relatively small amount of other hardwoods are pulped (Table 7); nevertheless, the use of hardwoods other than aspen increased six times from 1945 to 1950, indicating a definite trend in the use of this material.

TABLE 7.—PRODUCTION OF HARDWOOD PULPWOOD IN THE LAKE STATES, 1950

Species	Volume
	Standards cords
Aspen	683,836
Birch	11,263
Miscellaneous	48,581
Total	753,680
Total, all species	1,872,442
Total hardwood imported (principally aspen)	54,528

Source: Tech. Note No. 364, Lake States Forest Experiment Station (*3*).

In addition to these uses, hardwoods are used today to supply the raw material for a variety of minor products (Table 8).

Estimated total drain for all hardwood species in 1948 was 413 million cubic feet of which approximately 57 percent was from saw-timber trees. Allowable cut of hardwoods as calculated by the U. S. Forest Service for 1948, if a permanent forest industry is to be maintained, amounted to about 513 million cubic feet (*1*). In aspen alone the drain was only about 60 percent of the allowable cut. This allowable cut also exceeded the drain for such species as paper birch, red maple, elm, and black ash. It is in the preferred hardwoods, namely, sugar maple and yellow birch, that a shortage of growing stock exists.

Because of the preponderance of hardwoods in the Lake States and a definite shortage of softwoods, it appears quite likely that the hardwoods will be used by the forest industries in ever-increasing amounts if they are to continue to exist. In so doing, however, it is the secondary species and low-quality material that must be utilized. Such utilization will depend on several factors, namely, better technology, improved marketing techniques, and trade acceptance.

The field of pulping offers one of the best opportunities for increased use of hardwoods. At the present time the pulp and paper industry imports from Canada and from other regions in the United States over one-fourth of their pulpwood. High freight rates as well as other problems related to importing wood have made the industry more and more interested in the possibilities of hardwood pulping. Research by the U. S. Forest Products Laboratory has shown that desirable pulps can be produced from a number of the hardwood species in the region. Not only have desirable pulps been produced by the sulphate process which approaches the sulphite pulps in strength as well as other properties, but sulfite and soda pulps having desirable qualities have been produced from a variety of hardwoods. In addition, by using the semi-chemical process, hardwood pulps have been produced which show promise for such uses as glassine paper, as a substitute for softwood sulfites in groundwood papers, and for many grades of white paper when mixed with suitable filler stock (*1*). Tests of various hardwood groundwood pulps show that groundwood suitable for newsprint can be made by grinding mixtures containing up to 35 percent of beech, birch, red maple, and white ash (*5*). A par-

TABLE 8.—PRODUCTION OF HARDWOODS IN THE LAKE STATES FOR MISCELLANEOUS PRODUCTS, 1947

Use	Quantity
Fuelwood[1] (standard cords)	3,900,000
Chemical wood (standard cords)	113,000
Excelsior wood (standard cords)	89,000
Piling and posts (pieces)	17,705,400
Mining timbers (cubic feet)	2,185,000
Cooperage (board feet)	4,320,000
Others[2] (cubic feet)	3,460,000

Source: Commodity Drain from Forests of the Lake States, 1947 (*2*).
[1]Five year average (1945-49).
[2]Matches, clothespins, bowling pins, handles, woodenware, rustic furniture, toys, shingles, lath.

ticular advantage of the sulfate and soda processes is that of using lower quality wood than required by other pulping methods.

As a result of these and other investigations it is more than likely that the use of hardwood by the pulp and paper industry will continue to increase.

A phase of the wood using industry that has made tremendous growth since 1945 is the production of various types of building boards. Some hardwood is already being used in the production of such boards and the future will undoubtedly see increased use.

With supplies of sugar maple and yellow birch becoming limited, more use should be made of beech in the future. This species has been largely neglected for furniture and veneer purposes and while there are processing problems peculiar to the species, these problems are being solved.

Many of the hardwood stands in the central and southern portion of the region contain a wide variety of species. These stands present a definite management and utilization problem as available markets are likely to exist for only two or three of the species. Marketing organizations could greatly assist the woodlot owners in solving their utilization problems by finding markets for material not now readily sold. Connwood, a marketing organization in Connecticut, has shown considerable success in this field.

In considering other products such as excelsior, charcoal, posts, etc., it is doubtful if the next 15 or 20 years will see a great change in production trends.

Summary

Hardwoods make up about 70 percent of the forest resources of the Lake States. The drain on the hardwood stands in general, however, has been less than the growth. Some species such as yellow birch and sugar maple have been overcut whereas aspen has been increasing in volume.

Much of the wood products industry today is dependent on hardwood. The pulp and paper industry, which at one time depended entirely on softwood for its raw material, is using more and more hardwood and this trend will undoubtedly continue. Industries such as veneer and lumber will have an increasingly difficult time for some period of years procuring high quality material. Low quality material from secondary species is more than ample for all needs and its utilization is the major problem.

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Coming Events

C.I.F. Annual Meeting

The Canadian Institute of Forestry will hold its annual meeting, with the theme of "The Forest Situation in Canada," October 19-21, in Winnipeg, Manitoba.

S.A.F. Annual Meeting

The Society of American Foresters will hold its annual meeting, with the theme of "Nature on Edge", September 14-17, in Colorado Springs.

American Forest Congress

The American Forest Congress of the American Forestry Association will meet in Washington, D. C., October 29, 30 and 31.

Allegheny Section Summer Meeting

The summer meeting of the Allegheny Section will be held August 6-8 with headquarters at Blue Jay Camp of the Department of Forestry, Pennsylvania State College.

Western Forestry and Conservation Association

The Western Forestry and Conservation Association will hold its 44th forestry conference and annual meeting, Seattle, Washington, December 8-12.

Mid-Century Conference Resources for the Future

Resources for the Future, Inc., will hold its "Mid-Century Conference" in Washington, D. C., December 2-4.

The Effect of Seed and Stock Sizes on Survival and Early Growth of Ponderosa and Jeffrey Pine

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GRADING planting stock for maximum survival and growth is a very desirable practice, particularly when planting conditions are difficult. To obtain information for grading planting stock in California was the object of an experiment started in 1938 at the Feather River Branch of the California Forest and Range Experiment Station. Specifically, the study was designed to determine the relative survival rates and growth of trees from three size classes of seed, of seedlings, and of transplants.

Size of seed is known to be related to seedling size. Spurr (*5*) showed that seedling size was positively correlated with seed size for at least three years. However, the strength of the relationship diminished each year. Righter (*4*) found that seed size was related to the size, but not to the inherent vigor, of seedlings. In both of these studies seed size was determined by weighing each seed.

The superiority of the larger size classes of seedling and other planting stock has been demonstrated in several species. The best grade of 1-0 jack pine stock survived several times better than did the poorest grade, according to Pomeroy (*3*), but height differences between four grades of stock were becoming less pronounced, after 13 years. Chapman (*1*) sorted 1-0 shortleaf pine seedlings into height and stem-diameter classes. Those classed with the lower ratios of height to stem diameter had better survival and growth. On the basis of performance of the size classes, 35 percent of the shortleaf stock was graded as cull and 22 percent as premium. Red pine 2-0 stock graded into large, medium, and small classes on the basis of stem diameter was tested by Stoeckler and Limstrom (*6*). They found that survival and height growth were best in the larger size classes of stock. Hough (*2*) showed that the height of 10-year-old red pine was related to the green weight of 2-1 planting stock. Grades established on the basis of morphological characteristics of southern pine stock have not performed consistently, according to Wakely (*7*). He has proposed that trees be graded physiologically, but no criteria have been developed yet to define physiological grades. This paper describes a test of size class of seed and stock aimed at finding a basis for morpohological grading.

Procedure

Seed grading.—Ponderosa pine and Jeffrey pine seed, not collected locally, was separated into small, medium, and large size classes with a commercial separator having circular apertures (Table 1). With the available screens, separation into classes having an equal number or weight of seed was not possible.

Seed sowing.—The seed was sown in October 1938 at the rate of 200 seed per drill, each drill being 3 feet 8 inches long. The sowing of each seed size was replicated four times. After the total germination was counted in May 1939, the seedlings of each row were thinned mechanically to a density of 20 per foot, or 74 per drill. Drills having fewer than 74 seedlings were not thinned.

Transplanting. — Seedlings were lifted and transplanted in March 1940. The seedlings of each seed size were measured and sorted into tenth-inch height classes. A frequency distribution was prepared from the measurements combined for the four replications of each seed size. This distribution was divided into thirds—large, medium, small. Thus there was a lot of large seedlings from large seed, of medium seedlings from large seed, of small seedlings from large seed, of large seedlings from medium seed, and so on. Groups of 25 seedlings were selected from each lot for the transplant rows by a procedure which made the tenth-inch height distribution approximately the same for each group of 25 trees selected from a specific lot. Before being transplanted the roots of seedlings were pruned to a length of 8 inches from the cotyledon scars.

The transplanting design consisted of four nursery beds, or blocks, split into two plots for species. Each plot was divided into three subplots of 12 rows each, one subplot each of stock from large, medium and small seed. Each subplot was split into three minor subplots of four rows each, one minor subplot each for large, medium,

TABLE 1.—SIZE CLASSES OF SEED AS A RESULT OF SCREENING

Species and grade	Size of aperture		Proportion of seed in each class		Number of seed	
	Passed by	Retained by	By weight	By number	Per gram	Per pound
	Inches	*Inches*	*Percent*	*Percent*		
Ponderosa pine						
Large		0.187	34.5	27.7	18.36	8330
Medium	0.187	0.167	52.3	54.5	23.82	10800
Small	0.167		13.2	17.8	30.89	14010
Jeffrey pine						
Large		0.246	19.4	16.8	8.93	4050
Medium	0.246	0.216	64.8	62.7	10.73	4870
Small	0.216		15.8	20.5	14.46	6560

[1]This study was started by Duncan Dunning, retired, formerly chief of the Division of Forest Management Research at this station. The author wishes to acknowledge the participation in the test by B. M. Kirk, formerly with this station, and by G. H. Schubert, associate forester at the station.

[2]Maintained by the Forest Service, U. S. Dept. of Agric., in cooperation with the University of California.

and small seedlings. The rows of 25 seedlings were spaced 6 inches apart.

Regular nursery procedure with overhead sprinkling was followed in the ensuing months.

Planting.—Transplants were lifted in March 1941, and were measured and sorted into tenth-inch height classes for each of the three seedling sizes of each seed size. A frequency distribution was compiled from the measurements for each seedling-size lot from each seed-size lot of transplants of the four blocks. Each distribution was divided into thirds—large, medium, and small. Thus there was a lot of large transplants from large seedlings from large seed, of medium transplants from large seedlings from large seed, of small transplants from large seedlings from large seed, of large transplants from medium seedlings from large seed, and so on. A total of 27 size classes were selected in this way. Groups of 30 seedlings were selected from each third in proportion to the number of seedlings in each tenth-inch class of the third.

The planting design comprised four blocks of 54 rows each. Each block was split into two plots, one of each species. Each plot was divided into three subplots of nine rows each, one subplot for each seed size. Each subplot was divided into three minor subplots of three rows each, one minor subplot each for stock graded large, medium, and small as 1-0 seedlings. Stock graded large, medium, and small as 1-1 transplants was assigned to the individual rows within the minor subplot. The trees were planted at intervals of 3 feet in the rows, which were spaced 3 feet apart.

The height from cotyledon scar to tip of each seedling was measured at the end of the growth periods in 1941, 1942, 1943, 1945 (Fig. 1). In 1949 height was measured from the ground line. Losses were counted each year. The arrangement of the seedbeds, transplant beds, and plantation was of the split-plot design. Data were analyzed by variance analyses appropriate to this design.

Differences Between Seed Grade

The size of seed affected the rate of germination of the two species. Medium-sized seed of both species germinated best, as shown in the following tabulation of germination percents:

Species	Large seed	Medium seed	Small seed
Ponderosa pine	37.9	44.7	42.6
Jeffrey pine	57.7	64.5	61.9

Differences in germination between seed size classes of 2.7 percent and 4.0 percent were statistically significant at the 5-percent and 1-percent levels, respectively.

Seed size had no statistically significant effect on the survival of stock produced from the seed of the three classes. First-year survival of the seedlings, after thinning, ranged from 93 to 99 percent. The survival of transplants averaged 98.2 percent. In the field planting, differences in survival of trees from the three size classes of seed (Table 2) were not great enough to be significant.

Growth.—Growth of the year-old seedlings was definitely related to size of seed (Table 3). The tops of seedlings from large seed and from medium-size seed were longer and heavier than the tops of seedlings from small seed. The dry weight of the roots of seedlings from the three classes did not differ enough to be significant statistically in a sample of 150 seedlings from each seed-size class in each species. Jeffrey pine seedlings were larger, grade for grade, than ponderosa pine seedlings.

Growth in the transplant stage showed the effect of seed size. Transplants from large seed were taller than those from small seed. For the average heights shown below, differences of 0.26 inch and 0.37 inch were significant at the 5-percent and 1-percent level, respectively.

Seed size	Ponderosa pine	Jeffrey pine
	Height in inches	
Large	3.0	3.1
Medium	2.9	2.9
Small	2.5	2.7

Height of the stock after it was out-planted still showed the effect of seed size for the first three years (Table 4). But after 5 and 9 field growing seasons, measurements of height showed no relation to the size of seed from which the stock

TABLE 2.—SURVIVAL OF CLASSES OF PONDEROSA PINE AND JEFFREY PINE AT SUCCESSIVE YEARS AFTER PLANTING

Size class	Ponderosa pine				Jeffrey pine			
	Years after planting				Years after planting			
	1	3	5	9	1	3	5	9
	Percent							
Seed								
Large	98	94	92	92	93	86	85	85
Medium	98	92	89	88	95	93	93	92
Small	97	93	90	90	97	93	92	91
Seedling								
Large	98	96	95	94	94	92	91	91
Medium	98	94	92	92	95	91	90	90
Small	96	88	85	84	95	89	88	88
Transplant								
Large	99	97	95	95	97	96	95	95
Medium	99	94	93	92	94	91	90	89
Small	94	87	84	84	93	86	84	84

TABLE 3.—SIZE OF SEEDLINGS GROWN FROM THREE SIZE CLASSES OF SEED

Species and seed size	Height	Dry weight of tops	Dry weight of roots
	Inches	*Grams*	*Grams*
Ponderosa pine			
Large seed	1.9	0.27	0.29
Medium seed	1.7	0.25	0.28
Small seed	1.4	0.20	0.22
Jeffrey pine			
Large seed	2.2	0.40	0.49
Medium seed	1.9	0.38	0.46
Small seed	1.7	0.29	0.33

FIG. 1.—The plantation after 4 years. PLLL refers to ponderosa pine large seed, large seedlings, large transplants; PLSS refers to ponderosa pine large seed, small seedlings, small transplants.

was produced. Thus, seed size affected the size of stock for at least five years but not more than six years after germination.

Differences Between Seedling Grades

During the transplant year, seedlings of all three classes survived at approximately the same rate; the average survival was 98.2 percent. After field planting, stock from seedlings of the three grades also survived equally well for the first two years (Table 2), but in succeeding years greater losses of trees occurred in the smaller and medium class than in the large class. In the third, fifth, and ninth year after planting, differences of 4.3 percent, 4.6 percent, and 4.6 percent were significant at the 5-percent level. Survival in all classes was high even though real differences existed.

The heights attained by the three seedling classes in transplant beds reflected the size classes into which the seedlings were sorted before transplanting. Small seedlings remained small as transplants and large seedlings produced large transplants (Table 5). Differences in height continued even after the stock from the three seedlings classes was planted (Table 4). The spread between the classes was not large in absolute values but was highly significant statistically. For example, three years after planting an average difference of 0.47 inch was significant at the 5-percent level; five years after planting 2.0 inches was significant.

Differences Between Transplant Classes

Survival of large transplants was higher each year than survival of medium or small transplants, and survival of medium transplants was better than that of small transplants (Table 2).

The spread in height between the transplant size classes increased after the stock was planted out. The large stock, on the average, grew faster than the medium stock, which in turn grew faster than the small stock (Table 4). The differences, though still relatively small after nine years, are statistically significant. If the large stock continues to grow faster, then the dominants of the stand will come mostly from those trees which were large and medium transplants (Fig. 2).

TABLE 5.—HEIGHTS OF THE THREE SEEDLING SIZE CLASSES, AS TRANSPLANTS

Species and seedling size	Height when transplanted	Height when lifted
	Inches	
Ponderosa pine		
Large seedlings	2.4	3.5
Medium seedlings	1.6	2.7
Small seedlings	1.1	2.1
Jeffrey pine		
Large seedlings	2.6	3.6
Medium seedlings	1.8	2.9
Small seedlings	1.3	2.3

Discussion

Under the procedure followed in this trial, seed size had only a short-time effect on the survival or growth of trees from the different seed sizes. There may be some question as to whether the results would have been the same if seed had been sown completely at random. Segregation of the seed classes eliminated competition between the large seedlings from large and medium seed and the small seedlings from small seed. Had there been competition between the seed size classes, the early differences might have prevailed for a longer time.

TABLE 4.—HEIGHT OF DIFFERENT SIZE CLASSES OF PONDEROSA PINE AND JEFFREY PINE STOCK, BY YEARS AFTER PLANTING

	Ponderosa pine				Jeffrey pine			
	Years after planting				Years after planting			
Size class	1	3	5	9	1	3	5	9
	Inches							
Seed								
Large	3.9	9.7	22.3	48.9	3.6	8.2	19.1	48.7
Medium	3.7	9.8	22.6	48.2	3.6	8.6	20.3	51.8
Small	3.3	8.9	20.8	46.9	3.4	8.4	20.0	50.3
Seedlings								
Large	4.5	11.0	23.9	50.5	4.3	9.7	21.8	54.1
Medium	3.6	9.5	22.1	48.3	3.5	8.4	20.0	50.9
Small	2.8	8.0	19.9	45.3	2.9	7.1	17.6	45.8
Transplants								
Large	4.4	11.0	24.3	51.6	4.2	9.9	22.7	56.0
Medium	3.5	9.5	22.2	48.7	3.5	8.4	20.0	50.6
Small	2.9	7.9	19.2	43.8	2.9	6.8	16.8	44.3

The same argument may be used in considering the differences between seedling grades and between transplant grades. If there had been as much competition between seedlings of different grades as between seedlings of the same grades, survival and growth in the two larger classes might have been relatively greater than in the small class.

But despite the segregation methods which may have minimized competition between size classes, the dominant trees of the present stand come mostly from large or medium sized transplants or seedlings. To illustrate, if the now dense plantation were thinned to a 6 x 6 spacing, 25 percent of the original stand would be saved, probably the tallest 25 percent. Of these, 82 percent started as large and medium transplants and 80 percent as large and medium seedlings. The tallest 25 percent of the trees were about equally divided among the three seed size classes.

The fact that 18 to 20 percent of the largest trees in the plantation started out as small transplants or small seedlings suggests a genetic influence. In a population of seedlings, small stock may result from environmental conditions or genetic constitution, or both. With the present knowledge there appears no way of separating the environmentally retarded seedlings from the genetic runts. Consequently some of the genetically good trees will be sacrificed by a system of grading based on early sizes.

FIG. 2.—Eleven-year-old trees from large transplants outgrowing those from small transplants. LLL refers to large seed, large seedlings, large transplants. LLS refers to the same except small transplants.

There is little choice apparent so far between the two species. The survival of the two is practically the same. Concerning growth, Jeffrey pine was larger as planting stock but fell behind ponderosa pine for the first 5 years in the plantation. Subsequently it overtook ponderosa pine. Whether or not the Jeffrey pine, which is not native to the site, will outgrow the ponderosa pine (not of a local seed source) remains to be seen.

The data reported here, which cover a period of 11 years, show the superior performance of the larger stock. Although survival of all classes of stock was good in this test, greater differences in survival between the grades are probable in more severe sites, with less favorable weather, and with poorer handling of stock. The differences in growth and survival between the small and the larger classes will probably increase as competition between trees in the plantation increases. In the absence of a better system of grading stock, discarding the smaller trees will give better survival and growth in a plantation.

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Ray F. Weston (1884-1953)

Ray F. Weston was born in 1884 at Quincy, Mass., and received his preparatory school education at Adams Academy there. He attended Harvard for five years, receiving his B.S. Degree in 1908. He also qualified for an M.F. Degree.

With the exception of military service from April, 1918, to January, 1919, he had been continuously engaged in forestry work since his graduation. His experience included work in the New England states, in the South, and in Mexico. He went to Mobile, Ala. in 1938 to organize the land purchases and wood procurement department for Hollingsworth and Whitney Company. He continued active on this job until June, 1949, at which time he went into semi-retirement and served in the capacity as advisory forester for the company until his death, May 13, 1953.

Mr. Weston was a well-known and respected leader of forestry work in the South. He was president of the Southern Pulpwood Conservation Association in 1948, and was president of the Alabama Forestry Council in 1948-49. He had been a member of the Society of American Foresters since 1923. Mr. Weston lived in Montrose, Alabama.

Recreation Plans for the Superior National Forest[1]

Galen W. Pike
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THE SUPERIOR National Forest in northeastern Minnesota lies along the U. S.-Canadian border for over 100 miles joining Ontario's Quetico Provincial Park in the Rainy River and Lake Superior drainages—the famous Quetico-Superior Area.

Centuries ago an unknown race traveled the waterways of this area and trod the portages, leaving a record of their passing in cliff paintings, the "pictured rocks" or "painted rocks," as we know them today. These travelers were followed by the American Indian—the Sioux, the Cree, and the Chippewa. The white man was unknown in the area until 1660, when Radisson and Grosiellers explored the region and returned to Montreal with their fleet of canoes loaded with rich furs. A century later three great trading companies were competing for furs from the region—the Hudson Bay Company, the Northwest Company, and Astor's American Fur Company. This period in the late 1700's was the heyday of the voyageur. Trade over the border route originated as far northwest as the McKenzie River country and the route was, in effect, the elusive "Northwest Passage." The border lakes were hardly wilderness then but part of a "busy thoroughfare to empire, teeming with life and incident as long as the fur trade flourished."

This area, rich in natural resources, was for many years the cause for boundary disputes which were finally settled in 1842 by the Webster-Ashburton Treaty between the United States and Great Britain, which also provided "That all the water communications and all the usual portages along . . . (the border described) . . . shall be free and open to the use of the citizens and subjects of both countries." This made the route an international thoroughfare truly labeled by Grace Lee Nute "The Voyageur's Highway."

The fur trade had declined during this time but only a few decades later the U. S. portion of the area had largely passed into private ownership, and again teemed with the activity of the early loggers. Following the logging and the accompanying forest fires, Mother Nature gradually took over and the primitive atmosphere of solitude and seclusion returned.

Creation of the Superior National Forest

At the height of logging operations along the border waters and North Shore streams, the nucleus of the Superior National Forest was created by Presidential Proclamation. Theodore Roosevelt set aside about 697,000 acres of public domain in 1909, supporting mostly young jack pine, which neither the early logger or any one else wanted. The major part of this area was in the center of the present forest, considerably south of the Boundary, and included some of the choicest canoe country.

The forest was expanded, mostly in the 1930's by purchases under the Weeks Law of 1911, to some 2,800,000 acres. This returned most of the lands in the choice canoe country to public ownership.

Concurrently with the land purchase program within the extended boundaries of the Superior National Forest, other things were happening. The long controversy over proposed water power developments along the border waters came to a conclusion with the passage of the Shipstead-Newton-Nolan Act in 1930. This Act prohibited further alteration of the natural water levels, thus removing the threat to lakeshores from flowages. It also prohibited logging on federal lands within 400 feet of the natural shorelines of canoe waters. Thus Congress recognized the two outstanding values of the area—the recreational and scenic values along the labyrinth of waterways, and the natural timber resources back from the waterways. An act of the Minnesota State Legislature made similar provisions for state-owned lands within the same area.

Early Management of the Forest

All national forests are still managed under the basic policy down by the Secretary of Agriculture in a letter to the forests dated February 1, 1905, which reads in part as follows:

> In the administration of the forest reserves (called National Forest since March 4, 1907) it must be clearly borne in mind that all land is to be devoted to its most productive use for the permanent good of the whole people, and not for the temporary benefit of individuals or companies. All the resources of forest reserves are for use———and where conflicting interests must be reconciled the question will always be decided from the standpoint of the greatest good of the greatest number in the long run.

Early activities on the forest were largely custodial, primarily protection from forest fires. The trails and portages developed for this protection served, and still serve, remarkably well for recreational uses. The logging phase had passed and there was little demand for timber for a few years but the harvest has steadily increased from 1,300,000 board feet in 1915 to 96,400,000 in 1952. This is still much less than the annual growth, but the forest has made a beginning in meeting its responsibility in timber production.

Creation and History of the Superior National Forest Roadless Areas

The Superior, Little Indian Sioux, and Caribou Roadless Areas, known collectively as the Superior Roadless Areas, constitute that portion of the Superior National Forest adjacent to the Canadian border and the Quetico Provincial Park where, on account of the abundance of lakes and streams, the opportunity for canoe travel

[1]Paper presented at the joint S.A.F.—C.T.F. meeting, Montreal, Canada, Nov., 1952.

and other recreational pursuits under relatively primitive conditions is exceptional. The roadless areas occupy slightly over one million acres, or more than one-third of the Superior National Forest.

The first of these areas was dedicated in 1926 and the policy established to "maintain the primitive character of the area, particularly in the vicinity of lakes, streams, and portages, without unnecessary restrictions on other uses, including that of timber." This policy recognized the primitive values as well as the use of other values previously established.

Within the past half-century the Superior Roadless Areas have been variously called Primitive Areas, Natural Areas, Wilderness Areas, and finally were formally named "Roadless Areas" because the other names did not quite fit and were therefore misleading. During this time it has been necessary to resist invasion by power dams and roads and it is now necessary to resist invasion by resorts and hydroplanes.

Recent Land Acquisition, Resorts and Hydroplanes

Prior to World War II there were very few bush pilots and hydroplanes using the area and commercial resorts within it were limited pretty much to a few outpost cabins used in connection with resorts outside the boundaries of the roadless areas. However, in the early 40's a few enterprising operators recognized the potentials of the hydroplane and started "airplane resorts" in the interior of the areas. At the end of World War II, with many pilots and planes available, this developed into a serious threat to primitive values and wilderness lovers arose to meet it. The Thye-Blatnik Act of 1948 resulted. This act authorized an appropriation of $500,000 to acquire the remaining private lands (including resorts) in the areas and also authorized condemnation of lands not encumbered with habitable structures.

Some 35,000 acres and 6 resorts have been purchased within the past four years. The Izaak Walton League endowment fund was used freely in this program. About 50,000 acres of private lands, including 8 resorts, remain to be acquired in the Superior Roadless Areas, exclusive of Basswood Lake which presents special problems. Acquisition activities are still progressing as funds are available and negotiations can be completed. The public acquisition of these private lands is the most important portion of the recreation plans for the areas. Until they are in public ownership, they are a constant threat to primitive values.

The Thye-Blatnik Act and the purchases under it went far to reduce the airplane threat but appropriations under the act and land purchase were discouragingly slow. There were over 70 planes using the area rather regularly largely nullifying the roadless area policy. The President, therefore in December 1949, felt it necessary to execute an airspace reservation which prohibited private flights into the areas after January 1, 1951. (Incidentally, enforcement of this order is presenting some real problems.)

Multiple Use Management and the Zoning Concept

In simplest terms the plan of management for the forest as a whole is one of zoning. The forest is divided into three main zones, based on the primary values of the land found within them. These zones are shown on the accompanying map.

The First Zone.—This lies along the International Border, adjacent to the wilderness area of Quetico Provincial Park in Canada. It contains the choicest and most scenic lake and canoe country in the Superior National Forest. While much of it was cut over prior to extension of the national forest boundaries, within it are found the few sizable old-growth stands of white pine and red pine on the forest. This includes the Boulder River Natural Area, a museum piece of three square miles of virgin red and white pine, the only such stand left in this part of the state. It comprises 509 square miles, and is reserved for recreational use because of its outstanding primitive, scenic, and historical values and its abundance of waterways. To preserve its wilderness qualities, federal land within it is closed to commercial timber cutting, roads, resorts, summer homes, and similar developments. This is called the "no-cutting" zone because no timber cutting is permitted on federal lands within the zone. It was a natural development for the area supporting the intricate pattern of waterways and was first formally delineated by the Forest Service in 1941.

The Second Zone.—This area is directly south of the no-cutting zone, embraces the balance of the roadless areas, which together with zone one comprise over 1,616 square miles. Scenic and recreational values of zone two are less concentrated and less intimately related to the border lakes than are those in the no-cutting zone, but these values are given first priority in management. As in zone one, all public roads, resorts and other structures designed for permanent occupancy are excluded from federal lands. However, the plan of management permits timber harvesting back from the lake and stream shores, together with temporary roads and camps required for logging. By this means there is being made available for beneficial use a large volume of even-aged jack pine and spruce, most of which is so old that it is especially subject to windthrow and is rapidly deteriorating through decay, disease, and insect infestation. Following cutting positive steps that include planting are taken to stimulate new growth. These cutting and regenerative operations are rarely seen by canoeists, since uncut reservations (required by law as well as management policy) are left adjacent to canoe waters, except in such unfortunate instances of catastrophe as the blow-down of 1950 at Polly Lake.

There are no public roads within zones one or two. The logging roads in zone two are closed to public travel at all times and are promptly and effectively made im-

passable on the completion of the operation in each logging unit.

These two zones are characterized by an abundance of lakes which form an ideal pattern for canoe travel under primitive and near-primitive conditions. Along these historic waterways the atmosphere created by voyageurs, explorers, and missionaries still lingers. We feel that the primitive, historic and recreational values are adequately safeguarded insofar as management plans and policy go. Land purchase and law enforcement are problems that will be with us for some time.

The Third Zone.—This area constitutes the remaining 64 percent of the Superior National Forest. This is the multiple-use zone in which resource use and developments of all kinds are encouraged —lumbering, manufacturing and recreation, including the resort industry. There is ample opportunity here for many additional resorts, youth camps, etc. on both federal and private lands. Even here the elements of zoning are not absent. Special consideration is given to preserving scenic beauty along roads, lakes and streams. Also, the 400-foot reserved strip provided by the Shipstead-Newton-Nolan Act applies to most of this zone, as well as to zones one and two.

Recreation Plans

Recreational use, like the timber use, was very minor during the early days of the forest. Early figures are not available, but the number of visitors has increased 300 percent during the past 10 years to a reported total of well over a million for the past year. Early recreation planning was largely incidental to forest protection or timber production and the recreational facilities provided were limited to a few fireplaces, tables and pit toilets. Provision was also made for leasing sites for a few resorts and a few sites for groups of summer home lots were laid out. Permits for buildings on many of these sites are still in effect today. When funds and personnel became available during the Emergency Conservation Program in the "30's," the then existing plans were reviewed and formal detailed recreation plans developed for the forest. It was divided into recreation units and subunits. Sites were selected and surveyed for public camp and picnic grounds, youth organization camps, summer home groups, and additional resort sites.

These special units were selected outside of the Roadless Areas, i.e., in zone three, but eight of the camp grounds were laid out at entrance points into these areas. Facilities developed during that period on federal lands totaled 26 camp and picnic grounds with 365 fireplaces, 335 tables, 171 toilets, 5 shelters, and 125 garbage pits. Twenty-one summer home groups were surveyed, providing 388 lots. Sixteen resort sites were selected. One hundred twenty-two summer home permits and 12 resort permits are now in effect. There are more than 175 resorts on private and public lands in zone three, most of which make considerable use of the roadless areas.

Within the roadless areas, zones one and two, 244 canoe camp sites were provided with a simple fireplace, rustic table and, if soil conditions permitted, a primitive pit toilet.

Standards for public service improvements within the roadless areas have been established as follows:

1. No docks for canoe travel will be constructed except at marshy or extremely rocky landings or in rare instances elsewhere to meet the requirements for public safety. Practical docks will be permitted on the larger lakes to accommodate motor boats. All docks shall be of native material and shall be kept as inconspicuous as practicable.

2. Portages and trails shall be constructed to the minimum standard required for the type and intensity of use. The primitive character of the trails should be preserved to the utmost extent practicable.

3. Camp grounds shall be improved only where use creates sanitation and fire protection hazards. Only native material and primitive methods of construction shall be employed.

4. Directional and other signs shall be permitted where necessary for public safety and convenience. All signs shall be of rustic character except those marking portage termini, which should be of such color as to be readily visible for a reasonable distance from shore.

Fifteen years' experience with these recreation plans has demonstrated their basic soundness. There was, of course, the occasional camp ground that was overbuilt for the use that developed and a few that were inadequate. Needed adjustments have been easily made by moving a few fire grates, tables and toilets from overbuilt to underbuilt units. In common with national forests and parks throughout the United States, most of these facilities constructed of native timber now need replacement. This has created an additional incentive for reviewing and revising our recreation plans, but the greatest need for replanning is because of the tremendous increase in visitors, reported at 1,170,000 for 1951. Also, canoeing in the areas has increased phenomenally the past few years. It is estimated from sample counts that 45,000 persons traveled the waterways of the Superior Roadless Areas in 1951. Spot checks have shown as many as 50 canoes or 120 persons over a popular route in a single day and indicate as many as 10,000 persons over some routes last season. Thus, canoeists themselves are a threat to wilderness and pose many sanitation and administrative problems.

There are many routes, totaling hundreds of miles of waterways, within the roadless areas that receive little or no use. One obvious answer to the over-use problem is to spread the use to these waters. Toward this end we have selected nine additional access points, but to make them available and usable requires the construction of access roads to them, parking areas and developed camp grounds at them, and some 50 additional improved canoe camp sites along these routes. Funds or manpower for this work

are not yet in sight. And there still would be the problem of meeting the increasing need for guards to maintain the portages and police the camp sites. We have selected strategic locations for headquarters for seven such guards. Equipped with portable radios they would be immediately available for fire suppression. Prior to our use of hydroplanes over and into the areas for fire detection and suppression, fire protection guards assigned to the areas did such of this policing work as was not accomplished by the occasional trail and portage crew we were able to finance. Since the hydroplanes have eliminated the guards and our limited trail and portage funds don't go nearly as far as they did, we have been able only to brush and remove windfalls from the portages on the 275 miles of canoe routes we consider of primary importance. There are 500 miles of canoe routes we consider of secondary importance, and we would like to be able to remove windfall from the portages occasionally. There are about 1,000 miles of the tougher canoe routes where we contemplate no maintenance and the user is strictly on his own.

It is pertinent to mention that water levels necessary to eliminate many difficult portages are maintained by beaver dams and that we have many "dead" and some "failed" dams because the beaver are gone. Their disappearance has been attributed variously to overtrapping, over-population with loss of food supply, winter freeze out, die-off due to tularemia or other disease, etc. In any case it is a problem for the biologist as well as for the canoeist. Incidentally, there are no special federal fish or game regulations within the Superior National Forest. The only such laws or regulations are those of the State of Minnesota and we work very closely with the state fish and wildlife men.

Recreation plans call for rather complete but rustic directional signs for the primary canoe routes that receive heavy use by novices. There is still a question as to the extent of signing which should be done on the other routes. In considering this question it should be kept in mind that quite accurate and detailed maps for the areas are available from various sources. Present plans call for the publication of folders describing the canoe country and the canoe routes.

Notes

More on Commercial Forest Tree Species

The article "Geography of Commercially Important United States Trees," by Wm. A. Dayton, in the April 1953 issue of the JOURNAL OF FORESTRY (pp. 276-79), is one which should be of great interest and use to foresters all over the United States. In looking over the list, particularly in regard to California species, I was surprised to note the omission of *Chamaecyparis lawsoniana* (Port Orford white-cedar) and *Picea sitchensis* (Sitka spruce). I am sure this must have been accidental for these two species have long been regarded as commercial in the Pacific Coast states. The cedar is utilized to even greater extent in Oregon, and the spruce in Oregon and Washington, than in California.

The following volumes of lumber of these species are reported to have been produced in the United States (excluding Alaska), during the twelve years—1940-51:

Year	Port Orford Cedar	Sitka Spruce
	—*Million bd. ft.*—	
1940	57	237
1941	73	304
1942	60	405
1943	59	371
1944	35	367
1945	37	170
1946	31	169
1947	17	163
1948	n.a.	120
1949	7	122
1950	n.a.	n.a.
1951	9	106

Source: U. S. Bureau of the Census and Forest Service publications.
(n.a. = not available)

In regard to the pines listed, the inclusion of *Pinus attenuata* (knobcone) and *P. sabiniana* (digger) as commercial does not conform to general usage in California, where these species have been commonly regarded as non-commercial. In the records of the California Forest and Range Experiment Station there is no instance of knobcone pine having been cut for lumber or pulp that I have ever seen. My official connection (Forest Survey) with these records covers the period since 1945. It is true that digger pine is occasionally utilized for lumber or container veneer. But if this is to be considered as commercial, so should *Pinus coulteri* (Coulter pine) and *P. radiata* (Monterey pine) which are each cut in small amounts for lumber in their restricted localities.

In regard to the oaks listed as commercial: *Quercus agrifolia* (misspelled "agricola" in the article) (coast live oak), *Q. chrysolepsis* (canyon live oak), *Q. douglasii* (blue oak), and *Q. garryana* (Oregon white oak) are very seldom cut for lumber. *Quercus kelloggii* (California black oak) and *Q. lobata* (valley white oak) are cut for lumber in small amounts.

Madrone (*Arbutus menziesii*), a Pacific Coast hardwood omitted from Dayton's table, is one regarded here as having commercial possibilities. Tests made at the Forest Products Laboratory at Madi-

son show that a satisfactory veneer can be produced from madrone. However, its use for lumber has so far been very limited.

In conclusion, it is my opinion that Dayton's list should prove very useful for a number of purposes. I would suggest, however, the addition of *Chamaecyparis lawsoniana* and *Picea sitchensis*. In any such list, there are bound to be marginal species such as the oaks and the pines I have named. Getting universal agreement as to whether these are commercial or not would be next to impossible. However, any local unit which disagrees with a nation-wide classification may always revise it to suit local ideas.

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Basal Area by the Thumb

Bitterlich's angle count method of measuring basal area and making volume estimates was well explained by Grosenbaugh in the January 1952 issue of the JOURNAL OF FORESTRY and many foresters have made angle measuring sticks of various designs for using the scheme. Many more read the article with mild interest or marked it for future reference, but haven't done anything about it yet. If you are one of the latter group, you probably aren't interested in more than rule of thumb accuracy, so here is a way to actually make use of that stubby digit for getting quick basal area estimates.

All that you need do is to stand on a spot in the forest, extend your arm and count all the trees surrounding you that look larger than your upturned thumb. Multiply your count by a factor you have figured for your thumb and the result is a good estimate of basal area per acre at that location.

To determine the factor that goes with your thumb, measure the d.b.h. of any convenient tree to the nearest tenth-inch, then back off with arm extended until the tree is just masked by the thumb or thumbnail. Now measure the distance back to the center of the tree and calculate the square footage of a circular plot of this radius. If you will then divide 43,560 by the number of square feet in your plot and multiply the quotient by the basal area of the tree the result will be your multiplier.

As an example suppose you found that an 18.0 inch tree was just covered by the width of the thumb of your extended arm when you stood 48 feet away. A plot with a 48 foot radius has 7,238 square feet of area and this goes into 43,560 square feet 6.02 times. Then the basal area of the tree, 1.77 square feet, times the blow-up factor, 6.02, equals 10.7. You would then multiply your tree count from any point or the average count from several points by 10.7 to get basal area per acre.

Since a factor like 10.7 is hard to use, probably you will want to see if there isn't some finger or part thereof that is just the right size to have the convenient basal area factor of 10. To find it measure from the test tree a distance that is just 33 times the d.b.h. in inches (or 2.75 times if the tree measurement is in inches and the distance is in feet). From the measured position sight back at the tree and choose the finger or nail that just masks the tree when the extended arm is locked at the elbow. Try this independently on several test trees of different sizes to make sure of your sight selection and thereafter always use that calibrated digit as your gauge.

According to theory you can be within 10 percent of the true basal area as long as your calibrated finger stays within 1½ inches of the correct distance from your eye. You should be able to hold that tolerance with practice. Of course, the thumb method isn't as accurate as a manufactured gauge but you are sure to have it with you when you want to use it.

One ordinarily has a penny in his pocket, and this too can be a sight object. When held between the fingers at 24.7 inches from the eye the penny has a basal area factor of 10 and has a good edge for judging line trees. An even better sight can be filed from a small piece of plastic and carried in the pocket. But if you get to the point of making a sight, you'd better attach it to a stick of correct length and have a proper gadget.

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Points of View

Technical Articles and the JOURNAL OF FORESTRY

Editor Meyer's report in the May issue on the sentiment of readers toward the technical nature of articles published in the JOURNAL OF FORESTRY raises an issue of real importance to the Society. Does the fact that over half the readers expressed a preference for less technical articles in the JOURNAL mean that foresters have fewer technical problems now than they used to have? This is hard to believe. Thirty years ago the forester's job was to convince people that forests were valuable resources which it was foolish to destroy. Today we have the tougher job of actually growing timber, as we claimed we could if only given a chance. Yesterday's one big problem of how to get people to stop burning their woods has grown into a multitude of problems: How to grow pine on natural hardwood sites? How to grow 100 million plantable seedlings per year in the nurseries of one state? How to manage land in the face of an uncontrollable disease like litterleaf? During the years of education and promotion, researchers struggled with silvicultural problems which foresters in the field did not really face because landowners were not ready to grow timber. Now when education is paying off, and land-

owners are interested in growing trees as a crop, is the profession going to reverse itself and concentrate on public relations and other broad interests?

That some members do not consider this a logical course is indicated by the sentiment of the education group that articles should be more technical rather than less so. This might be due to a natural inclination for educators to be less "practical," but I believe it is because most of us who are trying to teach forestry are constantly appalled by how little we actually know about "the scientific management of forests for the continuous production of goods and services."

Now Meyer is entirely correct in his statement that the field of interest and the responsibilities of the average forester have widened. Certainly the profession has reached a point where foresters must be broad-gauge men if they are to fill satisfactorily the jobs which are falling to them. But foresters are going to be hired mainly because they know more about managing forest land to produce timber, recreation, wildlife, watershed protection, and livestock than do any other class of men. Fundamentally, a forester must be a competent technician, and this he can be only by keeping up with the latest techniques.

The techniques with which any individual forester must keep up depend on the branch of forestry he is in. A man whose job is keeping a pulpmill supplied with wood need not know about the latest developments in recreational management. Nor does one managing forest range in the West have to know about new techniques in naval stores production. The interest of these men naturally centers around their own activities and new techniques in other branches of forestry have little value or interest for them. With the amount of specialization and regional differentiation which exists in forestry, an individual forester can hardly expect to find in a national journal more than one technical article per issue of direct value and interest for him. But that one article may be extremely valuable and useful, even though he dismisses the other articles as "too technical." Every article in the JOURNAL cannot possibly interest every reader. Even if the articles were "popularized" to the point where every reader could understand everything in them, they would not all be read. How many of us even read *all* of our daily newspaper?

In the light of this, cannot a different inference be drawn from Meyer's statistics? Does the average forester really want a less technical journal (something like *American Forests*, for example?) or does he want a journal with more technical material of immediate interest and application in his own work? The industrial foresters voted 62 percent for a less technical journal, and yet the many industrial foresters I know throughout the South are very much concerned about technical problems on their own operations. Furthermore, they are doing something about solving these problems. When they get together, this is what they talk about. But few of them write articles for the JOURNAL about the techniques they have worked out for solving their specific problems. Drawing on this group, as well as the foresters in state, federal, and self-employment, could do much to meet Meyer's conclusion that more articles are needed on the application of research findings (though much of what the "practical" forester is doing to solve his problems is research, whether he calls it that or not). The practicing forester should be encouraged to write up the results of his experience and make it available through the JOURNAL. This will not be easy to do; these men are not writers, publication is not a prestige factor in their jobs as it is in research and education, they will be reluctant to publish ideas of which they are not too sure themselves, and in some cases company policy may frown on making public ideas which have been developed within the organization. Still it is encouraging that our editor sees this as a fertile field and presumably plans to cultivate it.

However, is it not likely that even an article by an industrial forester will be classified as "too technical" by another industrial forester whose problems are not the same? A forester in the Douglas-fir region is not going to be much interested in a description of how to re-establish longleaf pine on the sandhills of the Southeast, regardless of who writes the article. The broad scope of activities of the American forestry profession is the most difficult problem with which the JOURNAL has to grapple. It has already led to the establishment of independent journals in such subject matter specialities as wildlife management, range management, and utilization. Professor Spurr's proposal for an ultra-technical journal is the same approach aimed at the needs of the research forester. The other aspect of this problem—that of regional differences—is equally serious. Here the medical profession has the advantage over forestry. A man appears to have much the same ailments and responds to the same treatments whether he lives in California or Maine, but the forests and the forestry problems of the two states are radically different. This situation has led some of us to think—rather nebulously, to be sure—about the possibilities of a *Southern Forestry Journal* which would confine itself to southern forestry problems. I am not sure at this stage whether I feel that such a venture would be a good idea or not. But I am convinced of one thing: the answer to the technical question with regard to JOURNAL OF FORESTRY articles is not to be found in a non-technical journal for non-technical foresters!

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Reviews

Tall Timber Pilots.

By Dale White and Larry Florek. 223 pp. Illus. The Viking Press, Inc., New York 17, N. Y. 1953. $3.50.

Tall Timber Pilots is a factual history of the Johnson Flying Service and covers much of the development and progress of forestry aviation in the northern Rocky Mountains.

Bob Johnson, with one plane and limited resources, started the Johnson Flying Service in Missoula, Montana in 1924. The goal of this pioneer aviation enthusiast was to keep flying. To do this he had to build a profitable business in difficult mountain flying. The first prerequisite was to become an expert mountain pilot himself — cool-headed under stress, superbly skillful in negotiating treacherous country, and able to return safely to base of operations.

Some of Bob's success in the development of the Johnson Flying Service from a small repair shop, owned and operated by two air-minded brothers, to top-ranking status in an unusual and spectacular field, was due to his insistence on first-class maintenance of equipment. Much was due to his selection and training of the "Johnson mountain pilots." These are colorfully and factually pictured as seen by the eyes of one of them.

As the title indicates, this is primarily a story of these pilots, a series of narratives woven around personalities and incidents that took place during three decades of progress in forestry aviation in the northern Rocky Mountains. The use of aviation by the Forest Service progressed simultaneously with the growth of the Johnson Flying Service. Although this book is primarily the Johnson story, it includes much on the history of Forest Service use of aviation.

The account is well written and combines readability with general authenticity. There are a few misstatements where the Forest Service is concerned and two of these deserve mention. According to Forest Service records, Bob Johnson of the Johnson Flying Service and Howard Flint, chief of fire control in the Northern Region of the Forest Service, developed the "static line" in 1936 to automatically open parachutes in cargo drops. Then in 1941 the "static line" was adapted to the Eagle back-pack parachutes used by the smokejumpers. It is our belief that T. V. Pearson, a forest officer now retired, in 1931 recorded the first proposal to use airplanes and parachutes to overcome the time handicap in placing men on fires in the back country. In 1939, David P. Godwin, then assistant chief, Washington office Division of Fire Control of the Forest Service, initiated the first smokejumper program.

During World War II, the Johnson Flying Service was not only vital to forest fire protection, but was involved in a heavy cadet pilot training program, and the training in precision jumping by Forest Service technicians of military paradoctors and search-and-rescue teams and instructors.

Character portrayals of the Johnsons and their pilots are generally realistic and sincere. The worrying Bob, happy-go-lucky Dick, and the others are shown as they appeared about the flying fields and in the cockpits. There is a touch of pathos in the accounts of the few crashes and justifiable emphasis on the excellent safety record in the face of exceptional hazards.

The book is easy to read, entertaining and especially informative for those interested in forestry aviation.

R. L. Hand,
A. E. Spaulding,

Publications of Interest

The Western Pine Association, 519 Yeon Building, Portland 4, Oregon, has produced a 16 mm Kodachrome film entitled, "*The Bounty of the Forest.*" The picture is a documentary of the growth, harvest, manufacture, and utilization of all species of lumber produced on a commercial scale in the western pine region. Films will be loaned to responsible persons or organizations who wish to arrange for showings. There is no charge for use other than payment of transportation charges one-way. Requests should be addressed to the association.

* * *

Forestry Enterprises, 1740 K St., N.W., Washington 6, D. C., has reprinted, from the original plates, the book, *Essentials of American Timber Law*. This book, written by J. P. Kinney, was first published in 1917 but remains at this time the only volume which brings together in convenient size the essentials of American forest law. It is priced by Forestry Enterprises at $3 per copy.

* * *

The annual report of the secretary of the New England Forestry Foundation, 3 Joy Street, Boston 8, Mass., tells of that organization's excellent results in demonstrating that growing tree crops is sound business for landowners in the Northeast.

* * *

A forest management plan and instructional aids are included in the publication, *Wausau Vocational School Forest*, which was prepared by Trees for Tomorrow. The 36-page pamphlet describes the 67-acre tract of timberland which was given to the Wausau, Wisc., Vocational School by Marathon Corporation, together with the instructional procedures by which the forest is used to teach students the fundamentals of farm forestry. It could well serve as a guide to foresters and teachers in the use of a school forest as a field laboratory for teaching forest management practices to school youth. M. N. Taylor is executive director of Trees for Tomorrow, Inc., Merrill, Wis.

Current Literature

Compiled by MARTHA MEELIG, *Librarian, The New York State College of Forestry*

Range Management Section Compiled by FRANCES FLICK, *Library, U. S. Department of Agriculture*

General

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Forests, Catchment Areas and Water Supplies. By E. P. Stebbing. pp. 253-421. Manager of Publ., Delhi, India. 1952. Indian Forest Records (n.s.) Silv. Vol. 7, No. 4. Rs 3/12/ or 6sh.

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Society Affairs

Officers and Members of the Council, 1952-1953

GEORGE L. DRAKE, *President*
Simpson Logging Company
Shelton, Wash.

WILLIAM J. BROWN
Woodlands Department
Kimberly-Clark Corporation
Neenah, Wis.

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Washington 6, D. C.

EARL PORTER
Southern Kraft Division
International Paper Company
Mobile 9, Ala.

PERRY A. THOMPSON
12 Elkin Court
San Rafael, Calif.

RUTHFORD H. WESTVELD
Department of Forestry
University of Missouri
Columbia, Mo.

Report of Midyear Council Meeting

A meeting of the Council was held May 21-23, 1953 in the Cosmopolitan Hotel, Denver, Colo.

Present were President George L. Drake, Vice President E. L. Demmon, William J. Brown, D. B. Demeritt, Frank H. Kaufert, C. Otto Lindh, G. D. Marckworth, P. A. Thompson, R. H. Westveld, and Henry Clepper, executive secretary.

R. E. McArdle and Earl Porter were unavoidably absent.

Actions on Accrediting

At the invitation of the president of Montana State University, the Committee on Accrediting recently made a re-examination of the forestry curriculum of the School of Forestry. Acting on the recommendation of the Committee, the Council members present unanimously reaffirmed the accredited status of the University.

At the invitation of the president of Utah State College, the Committee on Accrediting recently made a re-examination of the forestry curriculum of the School of Forest, Range and Wildlife Management. Acting on the recommendation of the Committee, the Council members present unanimously reaffirmed the accredited status of the College.

Accrediting Standards

By unanimous vote of the Council members present, the following statement submitted March 19, 1953 by the Committee on Accrediting, was approved.

To the Council:

The Committee on Accrediting at its meeting in Montreal during the 1952 meeting of the Society of American Foresters and in subsequent correspondence has given considerable study to the necessity of raising the standards of evaluation used in the accrediting process. In this connection the Committee notes with pleasure the endorsement of the Council of Forestry School Executives of its policy of giving greater emphasis to qualitative measures.

Therefore the Committee on Accrediting strongly recommends to the Council that immediate announcement be made in the pages of the JOURNAL OF FORESTRY and through letters to all institutions offering curricula in forestry that increased standards will be applied in all future accrediting examinations. For the present the same criteria will be used as those published in "Bases for Accrediting School of Forestry (Revision of 1952)." However, a higher degree of compliance with the qualitative aspects of these criteria will be expected.

It is quite possible that later the criteria themselves will be altered. The Committee is of the opinion that this phase of increased standards of accreditation should await the active participation of the Society in the new accrediting procedures proposed by the National Commission on Accrediting.

COMMITTEE ON ACCREDITING

Policy on Accrediting

For several decades institutions of higher learning in the United States have been subjected to periodic examination for purposes of accreditation. The accrediting examinations for general education have been conducted by the several regional associations; those for professional education by organizations or committees, usually under more or less direct control of the appropriate professional societies. The regional associations have been made up of the faculty members and executive officers of the institutions of higher learning. Under the circumstances it was quite natural for the executives of colleges and universities to view the accrediting processes in the professional fields, developed as they were by outside organizations, as constituting a greater irritation than the accrediting processes in general education.

Because of the rapid growth of accrediting in professional fields, undesirable features have arisen to cause undue harassment of the institutions of higher education. As a consequence, after long consideration, there was formed in 1950 a National Commission on Accrediting, composed of the executives of many colleges and universities throughout the United States. Continuing study by the Commission resulted in the plan, announced in 1952, of placing accrediting in all fields under the direction of the six regional associations. A part of the plan is the proposal to examine an institution as a whole, at one time. The examination is to be conducted by an accrediting team composed of the representatives of the appropriate regional association and the representatives of the professional groups for which curricula are offered by the institution being examined.

The Council of the Society of American Foresters, having given careful study to the historical developments in accreditation and to the preliminary activities of the regional associations, adopted the following statements as representing its policy on accrediting:

1. In spite of certain abuses, accrediting in the professional fields has strengthened education in these fields and should be continued.

2. Professional curricula present problems quite different from curricula in general education. In professional fields, the public has a right to expect a reasonable degree of uniformity in the quality and subject matter content of the educational preparation of professional men and women. The professional groups constitute the best-informed segments of the public to judge as to the adequacy of this preparation. Therefore the accrediting agencies sponsored directly or indirectly by professional societies must continue to play an important part in accrediting professional curricula.

3. The Council of the Society of American Foresters notes with pleasure the spirit of mutual cooperation displayed in the initial activities of the Middle States Association of Colleges and Secondary Schools under the plan of accrediting proposed by the National Commission on Accrediting. This attitude is worthy of emulation by all the regional associations.

4. All regional associations should proceed rapidly to bring about policies and procedures of accrediting under the proposed plan in order that the professional agencies with nationwide responsibilities may discharge these responsibilities more effectively. To provide a cooperative approach in this regard, each regional association should arrange a trial accrediting of an institution within its jurisdiction. The institution chosen should be one offering the largest possible number of professional curricula. Sufficient time should be afforded the accrediting representatives to examine the several curricula on the basis of standards heretofore in use; permit a consideration of the standards used and results obtained in each case by a plenary session of all representatives; and formulate a mutually agreed upon policy and procedure statement as a result of the discussions in plenary session.

5. Subsequent to the determination of a policy statement on the part of each regional association, the National Commission should attempt to bring about a desirable degree of uniformity among the regional statements as an aid particularly to the professional agencies which usually have responsibilities extending beyond the geographical boundaries of a regional association.

6. The Council of the Society of American Foresters believes the plan proposed by the National Commission on Accrediting possesses considerable merit. For its full effectiveness much will depend on the degree of mutual respect and cooperation among the several agencies involved. In a sincere desire to promote strong professional education, the Council of the Society of American Foresters pledges the full cooperation of the Society in giving the proposed plan a fair trial.

Honorary Member Elected

Frank Brooks Hubachek, attorney of Chicago, widely and favorably known to S.A.F. members in the Lake States and Canada for his contributions to forestry research and the preservation of forest wilderness areas, was elected an Honorary Member.

Mr. Hubachek is the founder of the wilderness research center on Basswood Lake, Minn. An article, descriptive of the center, was published in the JOURNAL OF FORESTRY for September 1952. He has long been an active leader in the application of multiple-use principles and land zoning in the Quetico-Superior area of Minnesota and Canada.

Declaration on Federal Lands

In view of recent legislation introduced in Congress to give stockmen vested rights as users of national forests and other federal lands, the Council adopted a declaration of policy on the subject. The following declaration was approved by the Council with William J. Brown dissenting.

The Council of the Society of American Foresters reaffirms its past statements[1] of policy and actions; and declares that, in order to protect the public interest, users of federal forest, range, and watershed lands should not be given statutory vested rights in these lands and their resources.

The Council further declares that the authority of the Secretary responsible for administration and management of these lands should not be limited as to effectiveness by restrictive legislation.

Under instructions of the Council, the executive secretary sent copies of the foregoing declaration to the Secretary of Agriculture, the Secretary of the Interior, the chairman of the Senate Committee on the Interior and Insular Affairs, and the chairman of this committee's Subcommittee on Public Lands, the chairman of the House Committee on the Interior and Insular Affairs, and the chairman of this committee's Subcommittee on Public Lands.

Policy Statements Declared Obsolete, and Revised

At the Council meeting held June 4 and 5, 1951, the Council unanimously discarded a group of 48 policy statements that were completely out of date. These statements included old actions taken by Society committees, resolutions adopted at annual meetings, Council resolutions not currently pertinent, and policies adopted by membership referenda no longer in force or applicable because of obsolescence. (See JOURNAL OF FORESTRY, August 1951, page 598.)

This action was taken on the recommendation of a special Society committee (F. H. Brundage, chairman), requested by the Council to study and weed out obsolete policy declarations. Subsequently, P. A. Thompson succeeded Mr. Brundage as chairman of the Committee on Policies and Objectives.

This committee continued the study of past Society policy statements. Mr. Thompson recommended, in behalf of the committee, that the following additional obsolete items be discarded. It should be remembered that one reason these old policies were recommended for discard is because they have in most cases been superseded by up-to-date revisions or new declarations.

Without dissenting vote the Council declared null and void the following policy statements.

1. Council resolution of 1944 on congressional bills affecting O & C lands. As this policy was subsequently covered by a membership referendum in 1949, the Council unanimously approved the following policy statement.

Whereas, the membership of the Society of American Foresters overwhelmingly opposed the transfer of some 462,000 acres in western Oregon from national forest to O & C Land status in a referendum vote in September, 1949,

Resolved, that the Council of the Society reaffirms its opposition to the transfer of the controverted national forest lands in Oregon to O & C status and that this opposition shall be known to the Congress in the event that any bill proposing the transfer of these lands be introduced in the 83rd or subsequent Congress.

2. Council statement of 1943 opposing Senatorial confirmation of federal employees earning more than $4,500 per year.

3. Council resolution of 1943 reaffirming a statement issued December 1940 endorsing the principle and defining the desirable scope of public regulation. This policy was subsequently rendered obsolete in part by a membership referendum on federal regulation in 1950.

4. Council statement of 1936 on legislation providing for the practice of sustained yield on O & C Lands.

5. Council statement of 1936 recommending that the Congress investigate the administration of O & C Lands.

6. Council policy statement on political employment in forestry. This policy has been superseded by the code of ethics for the forestry profession adopted in 1949.

7. Referendum of 1934 on princi-

[1] Grazing on National Forests, Resolution of 1926.
Resolution on the Public Domain, 1952.
Referendum on Multiple Use, 1947.

ples of forest policy for the United States. This referendum is declared no longer binding (1) because it represents the total vote of less than 900 members, and (2) many of the items enumerated therein have since been superseded by more up-to-date policy statements and referenda.

8. Resolution adopted at an annual meeting in 1941 with respect to the public domain. This resolution has since been superseded by the referendum on multiple use of 1947.

9. Council statement of 1932 on legislation dealing with the public domain. This statement has since been superseded by both referenda and more recent up-to-date policies adopted by the Council.

10. Statement by the Council with respect to Society policies in general and a program to make them effective.

11. Declaration by the Council in 1926 concerning grazing on national forests.

12. The resolution passed by the Council in June, 1951, with respect to mining claims on federal forest lands was rescinded. The following revised policy statement was adopted.

The Council of the Society of American Foresters regards the provisions of the United States Mining Laws, which authorize the appropriation of minerals and surface resources of the national forests and the public domain, as detrimental to the public interest in these publicly owned lands.

It therefore favors a thorough overhauling of this type of basic legislation to permit the development of these resources, prevent speculative abuse of the privilege of filing mining claims, and be enforceable by proper authority.

The Council also believes that certain common surface materials such as sand, gravel, stone, pumice, pumicite, cinders, etc., which are of widespread distribution should not be subject to entry as mining claims but should be disposed of by lease and with the requirement that surface values be protected or restored.

The Council therefore strongly urges the early enactment of legislation which would accomplish essential reforms in the present mining laws, and which would authorize the disposal of sand, gravel, stone, pumice, pumicite, and cinders on all public lands by lease.

Printing Revised Constitution and Bylaws

Publication of the revised Constitution and Bylaws of the Society was authorized by the Council to appear in the July 1953 issue of the JOURNAL.

In order to supply copies to new members and to maintain an inventory for official use of Section officers and membership committees, 2,000 additional reprints were authorized.

Surplus from 1952 Meeting

Following the joint meeting of the Society of American Foresters and the Canadian Institute of Forestry at Montreal in November, 1952, the C.I.F. submitted to the Council a statement of receipts and expenditures for the meeting. Receipts totalled $5,288; expenses, $4,925; leaving a surplus of $363.

Most of the work of organizing the meeting, including the raising and distribution of funds, was undertaken by the C.I.F., the host organization. In view of this fact, the Council voted unanimously that the C.I.F. retain the unexpended balance.

1953 Annual Meeting

The Council reviewed the plans and program for the national meeting in Colorado Springs, Colo., September 13-17. The arrangements and schedule of events, as approved, are published elsewhere in this issue of the JOURNAL.

A joint conference of the Council and Section delegates was authorized to be held on Sunday evening, September 13, at Colorado Springs. This conference, for the purpose of discussing matters of joint interest, will be under the chairmanship of Dr. Frank H. Kaufert, acting for the Council.

1954 Annual Meeting

Upon the invitation of the Wisconsin-Upper Michigan Section, the Council unanimously voted to hold the 1954 annual meeting in Milwaukee during the week of October 11.

The Council acknowledges with thanks the cordial invitation of the Central States Section to hold the 1954 meeting in Indianapolis, and regrets that the invitation cannot be accepted in view of the selection of Milwaukee as the convention city that year.

1955 Annual Meeting

In accordance with the Society's policy of holding annual meetings on a regional rotation system, the 1955 meeting will be held on the West Coast. Because of the desirability of scheduling meetings at least two years in advance in order to obtain the most

TABLE 1.—DUES STRUCTURE, SOCIETY OF AMERICAN FORESTERS

Year	*Grade*	*Amount*
1911	Active	$ 3.00
	Associate	
	Honorary	
1914	Active	3.00
	Associate	2.00
	Honorary	
1917	Seniors and Fellows[1]	5.00
	Juniors	4.00
	Associate	
	Honorary	
1928	Seniors and Fellows	8.00
	Juniors	6.00
	Associate	5.00
	Honorary	
	Corresponding	
1945 (Effective Jan.)	Seniors and Fellows	12.00
	Juniors	6.00
	Associate	5.00
	Affiliate	5.00
	Honorary	
	Corresponding	
	(NOTE: A fee of $5 is assessed upon original election to membership, but, effective January 1, 1945, will not be assessed for advancement to higher grades.)	
1948 (Effective Jan.)	Seniors and Fellows	12.00
	Juniors	6.00
	Associate	6.00
	Affiliate	6.00
1949 (Effective Jan.)	Fellows	15.00
	Members (over 6 years)	15.00
	Members	12.00
	Juniors (over 6 years)	12.00
	Juniors (3 to 6 years)	9.00
	Juniors (first 3 years)	6.00
	Associate	6.00
	Affiliate	6.00
1950 (Effective Jan.)	Student	3.00
	(NOTE: No fee of $5 upon original election to Student grade.)	

[1]Members changed 1917 to Juniors and Seniors.

TABLE 2.—COMPARATIVE STATEMENT: INCOME, EXPENSE, AVERAGE MEMBERSHIP, AND PER MEMBER COST, FISCAL YEARS 1943-1952

Year	Income	Expense	Average[1] membership	Per member cost	Income other than dues and fees	Adjusted per member cost	Annual dues range
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1943	34,890	25,478	4,551	5.60	5,360	4.42	5-8
1944	37,816	36,700	4,584	8.00	7,131	6.23	5-8
1945	43,599	36,008	4,457	8.07	7,531	6.39	5-12[2]
1946[3]	50,351	52,273	4,987	10.48	8,251	8.82	5-12
1947[3]	56,706	59,253	5,493	10.78	9,156	9.10	5-12
1948[3]	67,677	72,713	6,040	12.03	13,422	9.81	6-12
1949	81,170	79,430	6,456	12.30	15,293	9.83	6-15[4]
1950[3]	92,441	93,890	6,844	13.75	20,406	10.76	3-15[5]
1951	100,078	95,452	8,252	11.56	23,518	8.71	3-15
1952	106,625	105,437	8,995	11.78	25,516	8.85	3-15
1953 (Est.)	113,000	112,838	9,333	12.09	27,900	9.11	3-15

[1]Average membership for year—not total membership as of November 30th.
[2]Fee of $5 dropped for advancement to higher grade.
[3]Deficit years.
[4]Student member grade initiated at $3 annually. No admission fee required. Advancement made to Junior grade without additional dues payment for remainder of year.

suitable dates and to avoid conflict with other conventions, the Council instructed the executive secretary to invite suggestions from the three West Coast Sections, and to explore the best possibilities for a meeting city and headquarters hotel.

Action on the 1955 meeting will be taken by the Council at its next regular meeting on September 13, 1953.

Report of Committee on Cost of Operating the Society

At the Council meeting held in Montreal, November 17, 1952, a Council committee of three was appointed to study the cost of operation of the Society in relation to dues, and to carry forward a program to inform the membership of the cost of Society operation and the need for increased income. The members of the committee are Vice President E. L. Demmon, William J. Brown, and R.H. Westveld.

The committee reported on certain aspects of the study, as follows: The Council will give further consideration to the study at its September meeting. Meanwhile, the executive secretary was instructed to send copies of the following data (Tables 1-4) with a covering letter from Mr. Demmon to the Sections for their information.

Your committee has reviewed certain information relative to income and expense of the Society during recent years, the average cost per member, a comparison of the dues of our Society with those of other professional societies, and a current income analysis of Society members. No attempt has yet been made to list the services which the Society might offer with increased income, although it is recognized that all costs of doing business are increasing, including staff salaries, costs of getting out the JOURNAL (now $4.50 per member), etc.

To offset this in part, income from advertising is increasing (about 18 percent of total 1953 income), but there is a limit to the amount of advertising which members would like to have in the JOURNAL. Also, the fact that 76 percent of our membership have annual incomes of $7500 or less must be taken into account when considering the advisability of a further increase in dues. Detailed information is shown in accompanying tables.

We suggest that the Committee give further study to the Society's financial situation and report to the Council next September.

W. J. BROWN,
R. H. WESTVELD
E. L. DEMMON, *Chairman*.

TABLE 3.—DUES OF GRADE OF MEMBER IN OTHER PROFESSIONAL ORGANIZATIONS (1948-50)

Name of organization	Entrance fee for Member Grade	Minimum dues for Member Grade	Maximum dues for Member Grade	Years to reach maximum
	Dollars	*Dollars*	*Dollars*	*Years*
Society of American Foresters	0	12	15	6
Amer. Soc. of Civil Engineers	30	20-25	20-25	
Amer. Inst. of Chemical Engineers	20	15	15	
Amer. Soc. of Mechanical Engineers	25	20	20	
Amer. Inst. of Electrical Engineers[1]	20	20	20	
Amer. Inst. of Mining & Met. Eng.	20	15	15	
Amer. Soc. of Heating & Vent. Eng.	10	25	25	
American Veterinary Med. Assoc.[2]	5	10	10	
American Bar Association	0	3	12	5
American Chemical Society[3]	0	9	9	
Amer. Inst. of Accountants	10	10	30	6
Amer. Inst. of Architects	5	5	25	
Amer. Pharmaceutical Association		10	10	
Geological Society of America	5-10	8	10	

[1]Grade of Fellow corresponds to S.A.F. Member Grade; monthly publication $12 extra.
[2]American Journal of Veterinary Research, $2.50 extra.
[3]Publications $16 extra per year.

Retirement Plan for Employees

At the Council meeting in Montreal, November 17, 1952, authority was given for the appointment of a small committee to study the existing retirement plan for Society employees. The committee consists of Sam R. Broadbent, President Drake, and Miss L. A. Warren, business manager.

The retirement plan now in effect was started in 1938, when Society employees could not qualify for Social Security plan since the benefit formula was based on the equivalent of monthly income at age 65 under Social Security; not the generally accepted retirement formula based on annual compensation multiplied by years of service. Accordingly, employees receiving in excess of $3,000 annual salary were, in comparison, penalized by the then limitation of the maximum Social Security formula in effect at that time, $65 monthly at age 65.

Since the amendment of the Social Security Law in 1951, the present retirement plan covers both Social Security benefits as well as an insurance policy annuity for those employees who elected to participate. The total cost to the Society is $1,134 annually, of which a like amount is contributed by the employees. The benefit formula at age 65 is based on $3,600 annual

TABLE 4.—ANNUAL INCOME OF S.A.F. MEMBERS
(As of January 1953)

Employer	Questionnaires returned	Under $5000		$5000-7500		$7501-10,000		$10,001-15,000		Over $15,000		Not indicated	
		No.	*Percent*	*No.*	*Percent*	*No.*	*Percent*	*No.*	*Percent*	*No.*	*Percent*	*No.*	*Percent*
Federal	1,300	458	35.23	558	42.92	213	16.38	48	3.70	1	0.08	22	1.69
State, County, Municipal	600	382	63.66	167	26.16	25	6.16	7	1.16	1	0.01	18	3.00
Industry	1,300	543	41.77	431	33.15	139	10.69	48	6.46	58	4.46	45	3.46
Educational	200	65	32.50	79	39.50	34	17.00	16	8.00	3	1.50	3	1.50
Self employed	200	51	25.50	43	21.50	31	15.50	28	14.00	29	14.50	18	9.00
Other	85	29	34.31	24	28.23	6	7.05	5	5.88	6	7.05	15	17.64
Totals	3,685	1,528	41.46	1,302	35.33	448	12.16	188	5.10	98	2.65	121	3.28
Armed forces	103												
Students	251												
Retired	57					*Not tabulated*							
Not classified	185											596	
Total	4,281[1]												

[1]Represents 47.778 percent of membership, exclusive of corresponding, honorary, and inactive members to whom questionnaires were not sent.

TABLE 5.—COMPARISON OF EMPLOYMENT OF S.A.F. MEMBERS

Date	Total membership	Federal		Industry		State		Educational		Self employed, other, armed forces, students, retired, not classified	
		No.	*Percent*	*No.*	*Percent*	*No.*	*Percent*	*No.*	*Percent*	*No.*	*Percent*
1934 (March)	2,076	1,147	55.25	220	10.60	333	16.04	246	11.85	130	6.26
1937 (August)	3,954	2,516	63.63	368	9.30	486	12.29	307	7.76	277	7.02
1950 (January)	6,408	2,420	37.82	1,560	24.37	1,080	16.90	550	8.51	798	12.40
1953 (January)	8,960	2,821	30.37	2,721	30.37	1,255	14.01	419	4.67	1,844[1]	20.58

	No.	*Percent*
[1]Self employed	419	4.67
Other	178	1.99
Armed forces		
Retired		
Students	1,247	13.92
Not classified		
	1,844	20.58

salary, and no employee is provided benefits based on the remainder of his salary if higher.

The committee studied several alternate formulas that would yield retirement benefits more in line with present day costs of living, and submitted them to the Council for review. After reviewing them, the Council unanimously authorized the committee to put into effect a retirement plan to be effective as soon as practicable, at a total annual cost to the Society not to exceed $1,500 in addition to present retirement expenses to the Society. It is understood that the plan put into effect will be a mutual participating plan, with each employee matching the Society's contribution.

Society Office Space

For several years the Council has recognized the need for additional Society office space in Washington, D. C. Present space is inadequate, and inefficient because the Society occupies three separate offices on two different floors in the Mills Building. Two small storage rooms for the Society's inventory of the JOURNAL OF FORESTRY are rented in another building not convenient to the headquarters.

Unsatisfactory as this arrangement is, it has been the best the Society could afford because of budget limitations. The space occupied is six office rooms and two storage rooms for a total of 1,808 square feet at an annual rental of $3,888.

The Society has a two-year lease that ends May 31. During this two-year period, the Mills Building made two general rental increases, not affecting the Society, however, because of the lease. At current rental costs, the office space now occupied will probably increase from $3,528 to $5,225. This higher rent is still appreciably less than prevailing rents would be for comparable space in other Washington office buildings.

Based on the estimated additional cost of space now occupied, plus 400 square feet urgently needed, the total cost of office quarters, including storage space for JOURNALS, will be $6,055. A new lease in the Mills Building to permit consolidation of all offices and storage space is now a possibility.

Accordingly, the Council unanimously authorized the occupancy of the additional space in the Mills Building when available.

The Forester's Manual

The following report on the status of *The Forester's Manual* was submitted jointly by R. D. Forbes, technical editor, and Arthur B. Meyer, literary editor.

Of the 20 chapters of the *Manual* the following sections have not been finally reviewed and are in process of final revision:

Forest Mensuration
Forest Management
Geology and Soils
Silvics and Silviculture
Forest Range Management
Utilization
Miscellaneous

The remaining 13 sections are complete.

To prepare these sections, and the seven others yet to come, for the publisher, requires three separate tasks:

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1. Uniformity of presentation of the various sections. As each section was prepared according to an outline felt by the authors to be most appropriate for their subject, there is considerable diversity of form. A uniform outline procedure has been selected and the task of adjusting each section to the standard outline is in progress.

Due to the diversity of subject matter covered in this manual, there will be no possibility of securing complete uniformity of presentation, nor would this be desirable.

2. Literary uniformity of material. For a volume of 750 pages this is a considerable undertaking.

3. Preparation of figures for reproduction. Some of the sections had blue tracing cloth line drawings and photographic reproductions in a final form for the publisher. Others did not. Most of these figures which were not in final form were simple sketches or graphs. We are having a draftsman prepare them.

It is hoped to have the entire final typescript completed and delivered to the publisher by mid-summer.

The Council unanimously authorized the expenditure from the general fund of an amount not to exceed $1,500, including necessary expenditures already made but not previously authorized, to complete the *Manual* for publication.

Forest Type Bulletin

The following report was received from F. H. Eyre, chairman of the Committee on Forest Types. This committee was appointed to revise the Society's two bulletins, both out of print, on the forest types of the eastern and western United States and Canada. The descriptions of both the eastern and western types will be published in one bulletin.

1. The portion on western types is completed.

2. All descriptions for the eastern types, including eastern Canada, are in first draft and in the process of being checked.

3. The task of organizing the types under the ten major groups used in the U. S. Forest Service survey remains to be done. This is the major unfinished job.

4. The introduction remains to be written.

5. On completion of the above, the editorial office of the Society will undertake final editing and arrangements for publication.

Mr. Eyre believes that his work will be completed before the end of the summer.

Civil Service

With the approval of President Drake, in April the executive secretary wrote the Secretary of Agriculture and the chairman of the U. S. Civil Service Commission, recommending that the top positions in the Forest Service not be exempted from the competitive Civil Service since the activities of the Forest Service are primarily scientific and professional, and require personnel who are professionally trained in forestry and related sciences.

Replies received from the government agencies mentioned above indicated that since the Forest Service was established as a career service, and since the top positions have traditionally been filled by professionally educated men, the present administration has no intention of weakening it, and aims to keep it a bureau with the highest possible professional standards.

The Council approved the action taken.

Student Subscribers

Bylaw 71 provides as follows:

"Students of approved schools of forestry may be granted the privilege of subscribing to the JOURNAL at a reduced rate so long as they are bona fide students. This privilege shall not apply to members of the Society who are taking graduate work."

This bylaw was outmoded by the amendment to the Constitution providing for Student Membership. At the present time, a student subscription to the JOURNAL costs $3 per year. This is also the cost of the annual dues, including the JOURNAL, for Student Members. In order to induce eligible forestry students to apply for Student Membership, and for Junior Membership when eligible, the Council amended Bylaw 71.

By unanimous vote of the Council, Bylaw 71 is amended to read as follows:

Forestry students not eligible for Student or Junior Membership may be granted the privilege of subscribing to the JOURNAL OF FORESTRY at a reduced rate so long as they are bona fide students.

Fellow Nominations

The Constitution provides that all nominations for admission to the Society and for advancement to a higher grade "shall be referred to the entire voting membership for comment or protest." This is done by publishing their names in the JOURNAL OF FORESTRY. Accordingly, prior to each biennial election, it has been customary to publish monthly the names of all Members nominated for the Fellow grade.

In 1950, certain Members questioned this procedure on the grounds that it subjects persons to embarrassment when their names are listed as having been nominated to the grade of Fellow, and subsequently fail of election.

At the Council meeting of June 19-21, 1950, the Council voted to continue the policy of publishing the names of all Fellow nominees. The action was taken because the Council believed that, since Fellowship is the highest membership honor the Society bestows, the Society as a whole is entitled to know who is nominated for the honor. Not to publish the names of nominees, it was stated, would depart from the democratic process of open publicity, which should be adhered to in all Society procedures.

At its recent meeting the Council again considered the matter of publication. Without taking a formal vote, it was the consensus that publication of names should be continued so that the membership at large will know who is nominated.

Miscellaneous

E. L. Demmon, chairman of the Steering Committee, and F. H. Kaufert, director, of the Society's Research Project reported to the Council on the objectives and program of the study. This project, previously reported in the JOURNAL, was made possible by a grant of $30,000 from the Rockefeller Foundation.

The amended bylaws of the Southeastern Section were approved as being consistent with the Constitution and Bylaws of the Society.

In addition to the foregoing policy matters, the Council discussed many items of business and operation of the Society. These included several difficult membership applications, Section and Division affairs, Society membership procedures, JOURNAL advertising, application of the code of ethics, and participation by the Society in the Citizens' Conference on Resources for the Future.

The Council devoted two and one-half full days to this meeting, including one evening session and attendance at an evening meeting of the Central Rocky Mountain Section.

Annual Meeting

Society of American Foresters

Colorado Springs, Colo., September 14-17, 1953

Theme: "Nature on Edge"

Schedule of Events

Those expecting to attend the meeting are urged to arrive in Colorado Springs on Sunday, September 13, or not later than the morning of Monday, September 14. The open meetings start on Monday morning.

As will be seen from the following schedule of events, there will be numerous meetings and sessions arranged so as to provide attractions for a diversity of interests. The August issue of the JOURNAL will contain the final program of topics and speakers.

Sunday, September 13

S.A.F. Council, morning and afternoon meeting.
JOURNAL OF FORESTRY Editorial Board, evening conference.
Committee on Accrediting, evening conference.
Joint Meeting of the Council and Section Delegates, Evening.

Monday, September 14

Division of Education, morning and afternoon sessions.
Division of Silviculture, morning and afternoon sessions.
Divisions of Private Forestry and Forest Products, joint morning and afternoon sessions.
Division of Public Relations, evening session.
Division of Economics and Policy, evening session.

Tuesday, September 15

General meeting, morning.
Society Affairs session, afternoon.
Chuck Wagon Dinner at the Garden of the Gods, evening.

Wednesday, September 16

Division of Forest Management, morning and afternoon sessions.
Divisions of Watershed Management and Range Management, joint morning and afternoon sessions.
Division of Recreation and Wildlife Management, joint morning and afternoon sessions.
Annual Society dinner, evening.

Thursday, September 17

Choice of three guided field trips

Ladies' Activities

Ladies are cordially invited. There will be a special reception room available to the ladies throughout the meeting, and an early get-acquainted tea has been planned. In addition several delightful auto trips have been arranged to scenic and historic places of interest in the Pikes Peak region.

Ladies are especially invited to the Chuck Wagon dinner in the Garden of the Gods on September 15 (sports wear *de rigueur*), and to the annual Society dinner on September 16 (informal attire suitable).

Division Meetings

Division of Education

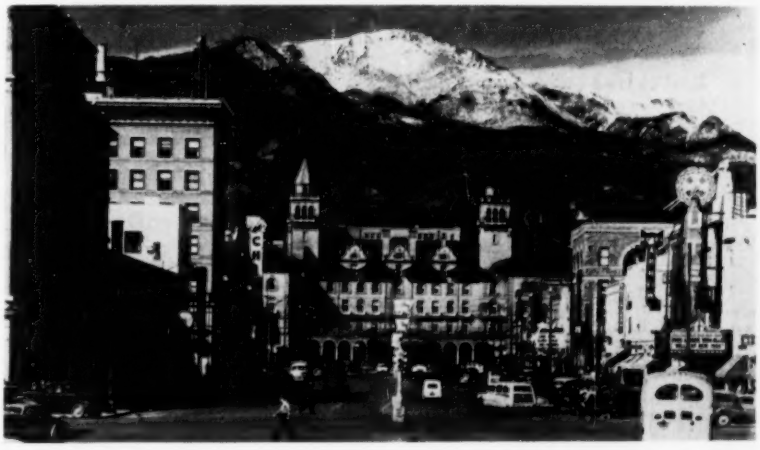
Monday, September 14

G. B. Hartman, Chairman
K. P. Davis, Vice Chairman
A. E. Wackerman, Secretary

Morning Session

Panel Discussion: "Effective Teaching." Moderator: Archie E. Patterson, School of Forestry, University of Georgia, Athens, Ga.

1. "Essentials of Effective Instruc-



PIKES PEAK AVENUE, Colorado Springs, looking west to the Antlers Hotel and Pike's Peak in the distance.

Photo courtesy Colorado Springs Chamber of Commerce

PEJA INDIAN DANCERS, who will entertain at the Society's banquet on September 16.

Photo courtesy Colorado Springs Chamber of Commerce

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tion." Walter F. McCulloch, School of Forestry, Oregon State College, Corvallis, Ore.

2. "Effective Use of Laboratory and Field Trip Time." Myron Krueger, School of Forestry, University of California, Berkeley, Calif.

3. "Use of Tests and Examinations as a Teaching Tool." Frank Kaufert, School of Forestry, University of Minnesota, St. Paul, Minn.

4. "Methods of Teacher Self-Improvement." George W. Thomson, Department of Forestry, Iowa State College, Ames, Iowa.

5. Business Meeting.

Afternoon Session

1. Report of Committee appointed to study the need for a proposed Journal of Forest Science. Chairman, Stephen Spurr, Department of Forestry, School of Natural Resources, University of Michigan, Ann Arbor, Mich.

2. Panel Discussion: "Better Forestry Apprenticeship." Moderator: Ross Williams, School of Forestry, Montana State University, Missoula, Mont.

"Study-Work Arrangements."

"Practical Work While in College."

"Increased Effectiveness in Teaching Major Professional Courses when Students have had a Reasonable Amount of Practical Training."

"Value of 'On-the-Job' Training Prior to Graduation."

"Post Graduate Training and Indoctrination."

Industry:

Public Agencies:

3. "What Employers Expect of Forestry School Graduates." William C. Finley, American Walnut Manufacturers Association, Chicago, Ill.

Binders for Journal

From time to time some Society members have requested from this office cost of binders for holding twelve issues of the JOURNAL OF FORESTRY. The purchase of a small number of such binders makes the single copy cost excessive for the individual member.

In quantities, the per binder cost to individual members probably can be reduced to $2, provided enough members are interested. Society members are requested to advise the Society office if they would like to purchase binders at this cost, so we can determine whether or not quantity purchase is warranted.

Division of Silviculture

Monday, September 14

Russell K. LeBarron, Chairman
Philip A. Briegleb, Vice Chairman
Jesse H. Buell, Secretary

Morning Session

1. "Thinning of Young Douglas-fir in Western Washington." Philip G. Haddock, School of Forestry, University of Washington, Seattle, Wash. and Svend O. Heiberg, College of Forestry, State University of New York, Syracuse, N. Y.

2. "Silvicultural Foundations for National Forest Cutting Practice in the Ponderosa Pine Stands of the Southwest." James A. Egan, U. S. Forest Service, Albuquerque, N. Mex.

3. "Blow-up Fires—Silviculture or Weather Problems?" Keith Arnold, School of Forestry, University of California, and C. C. Buck, California Forest and Range Experiment Station, Berkeley, Calif.

4. "Some Silvicultural Problems in

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Growing Shelterbelts on the Northern Great Plains." E. J. George, Bureau of Plant Industry, Soils and Agricultural Engineering, U. S. Department of Agriculture, Mandan, N. Dak.

5. "The Role of Natural Control Factors in the Engelmann Spruce Beetle Outbreak in Colorado." Noel G. Wygant, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Fort Collins, Colo.

Afternoon Session

Panel Discussion: "The Role of Genetics in Silviculture," Moderator: George M. Jemison, Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Mont.

1. "The Scope of Forest Genetics." Scott S. Pauley, Maria Moors Cabot Foundation for Botanical Research, Harvard University, Petersham, Mass.

2. "Extensive Application of Genetics by the Silviculturist." Clemens M. Kaufman, School of Forestry, University of Florida, Gainesville, Fla.

3. "Selection in the Intensive Phase of Forest Tree Improvement." Bruce Zobel, Texas Forest Service, College Station, Texas.

4. "Importance of Hybridization in Forest Tree Improvement." J. W. Duffield, Institute of Forest Genetics, U. S. Forest Service, Placerville, Calif.

5. "Opportunities in Disease and Insect Control Through Genetics." A. J. Riker, College of Agriculture, University of Wisconsin, Madison, Wis.

6. General discussion by panel.

7. Open discussion by members.

Joint Meeting

Monday, September 14

Division of Private Forestry

E. F. Heacox, Program Chairman
Julian McGowin, Vice Chairman
N. T. Barron, Secretary

Division of Forest Products

Fred E. Dickinson, Chairman
R. C. Fraunberger, Vice Chairman
Lincoln A. Mueller, Secretary

Morning Session

1. "Progress and Status of Tree Farms in America."

2. "Consulting Forestry as a Professional Career."

3. "Effect of Federal Income Tax on Forest Practice."

4. "The Forest Service and Private Industry."

Discussion.

Afternoon Session

Business meeting; election of officers for 1954.

Theme: Trends and Possibilities in Forest Products Utilization in the Rocky Mountain Territory.

1. "The Swedish Gang Sawmill for Rocky Mountain Woods." Larry O'Neil, Forest Products Company, Kalispell, Mont.

2. "The Use of Rocky Mountain Species for Pulping." H. E. Troxell, School of Forestry and Range Management, Colorado A & M College, Fort Collins, Colo.

3. "Suitability of Rocky Mountain Species for Veneer and Plywood." I. V. Anderson, Forest Utilization Service, U. S. Forest Service, Missoula, Mont.

4. "Hardboard Manufacturing Possibilities for the Rocky Mountain Territory." John B. Grantham, Oregon Forest Products Laboratory, Corvallis, Ore.

5. "Salvaging Lumber Shorts by

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Division of Public Relations

Monday, September 14

Albert Arnst, Chairman
Ralph Unger, Vice Chairman
C. W. Mattison, Secretary

Evening Session

1. "Public Relations Problems of Public Land Administrators in the Rocky Mountain Region." Joseph N. Hessel, Division of Information and Education, U. S. Forest Service, Denver, Colo.
2. "Public Relations Problems of Public Land Users in the Rocky Mountain Region." Willard Simms, *The Record Stockman*, Denver, Colo.
3. Motion picture: "The Enemy Is Fire," produced by Oregon and Washington Forest Fire Associations.

Division of Forest Economics and Policy

Monday, September 14

E. V. Zumwalt, Chairman
John Zivnuska, Vice Chairman
William A. Duerr, Secretary

Evening Session

Theme: "Economics of Spruce-Beetle Control in the Rocky Mountains."

1. "Technology of the Problem." B. H. Wilford, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Fort Collins, Colo.
2. "Control and Salvage Policy." Arthur L. Nelson, U. S. Forest Service, Denver, Colo.
3. "Economic Interpretation." Henry J. Vaux, School of Forestry, University of California, Berkeley, Calif.
4. Business Meeting.

General Meeting

Tuesday September 15

Harry R. Woodward, Chairman

Morning Session

1. "Public Relations Problems in the Central Rocky Mountains." John W. Spencer, Santa Rosa, Calif. (Former regional forester, U. S. Forest Service, Denver, Colo.)
2. "Problems Facing Forest Management in the Central Rocky Mountains." Jesse H. Buell, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo.
3. "Watershed and Range in the Central Rocky Mountains." Harold G. Wilm, Division of Forest Influences, U. S. Forest Service, Washington, D. C.
4. "Protection Problems in the Central Rocky Mountains." Noel D. Wygant, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Fort Collins, Colo.
5. "Recreation and Wildlife Problems in the Central Rocky Mountains." J. V. K. Wagar, School of Forestry and Range Management, Colorado A & M College, Fort Collins, Colo.

Discussion.

Society Affairs

Tuesday, September 15

Geo. L. Drake, President
E. L. Demmon, Vice President

Afternoon Session

Report of the President, Geo. L. Drake.

Report of the Executive Secretary, Henry Clepper.

Report of the Editor, Arthur B. Meyer.

Report of Committee on Accrediting, Myron Krueger, Chairman.

Report of Council Committee on Membership, Frank H. Kaufert, Chairman.

Report of Committee on International Relations, Tom Gill, Chairman.

Report of Committee on Safety, Seth Jackson, Chairman.

Report of Committee on Civil Service, M. K. Goddard, Chairman.

Report of Committee on Forest Types, F. H. Eyre, Chairman.

Report of Committee on *The Foresters' Manual*, E. W. Littlefield, Chairman.

Open forum discussion.

Chuck Wagon Dinner

Tuesday, September 15

Garden of the Gods

An outdoor dinner and evening of entertainment, western style, put on by the Colorado Springs Junior Chamber of Commerce.

Division of Forest Management

Wednesday, September 16

DeWitt Nelson, Chairman

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Foresters Mario Ravanelli, District Timber Supervisor of Pickands Mather & Co. *(left)* and Jack Storer, Osmose Plant Manager, inspect section of treated hardwood to check penetration of Osmosalts.

TREATING TIMBER FOR BIG USERS

. . . an ever growing business for Foresters and Lumber Producers

In the East, West, North and South, the rapidly expanding demand for treated timber and lumber is attracting more and more foresters and lumber producers into the wood treating business. Experts say the chief reason for this is that the substantial profits from wood treating offer them incomes that are more in keeping with today's accelerated economy.

This may well be true when you consider the fact that any lumber man with a little "spunk" and a tiny investment can set up his own wood treating plant and use his specialized knowledge to net an annual profit never before considered within the reach of a small producer.

As an example of the dollar volume of a typical treated timber user, we quote an article from the P. M. Iron News, company organ of Pickands Mather & Co.: "After months of thought, experiment and deliberation it was agreed that chemical treatment was the answer to (our) problem. In underground mines it is necessary that any chemical treatment kill the fungi which destroy timbers and yet be harmless to man; and be fire resistant; odorless; clean to handle; and reasonably low in initial plant cost. After thorough study, it was found that Osmosalts answered all these requirements, and a timber treating plant was constructed at Bessemer, Michigan. During two years of operation, more than $3\frac{1}{2}$ million board feet of all types of wood have received the Osmose treatment." This is a statement from only one of the many big customers of the Osmose treating plant at Bessemer, yet the plant is managed by a forester who is under thirty years old.

If *you* are interested in securing an Osmose Wood Treating Franchise for your area, and assistance and advice in setting up a wood treating plant . . . a secure and profitable future is possible. For full details, write to John L. Surdam, Vice President and General Manager, Osmose Wood Preserving Co. of America, Inc., 980 Ellicott St., Buffalo, N. Y.

Adv.

Gordon D. Fox, Vice Chairman
Stephen N. Spurr, Secretary

Morning Session

Photography and Mensuration

1. "The Control Method of Forest Management in an Age of Aerial Photography." Ashbel F. Hough, Northeastern Forest Experiment Station, Upper Darby, Pa.

2. "Use of Aerial Surveys in Forest Management." Kendall B. Wood, K. B. Wood and Associates, Inc., Portland, Ore.

Discussion leader: Herbert Jensen, Hammon, Jensen and Wallen, Consulting Foresters, Oakland, Calif.

3. "The Continuous Inventory of Ponderosa Stands in the Southwest." Dean Cutler, U. S. Forest Service, Albuquerque, N. Mex.

4. "Simplified Computation of Volume and Growth." Stephen H. Spurr, School of Natural Resources, University of Michigan, Ann Arbor, Mich.

Afternoon Session

Forest Administration

1. "The Administrative Aspects of Forest Management." Earl W. Loveridge, U. S. Forest Service, Washington, D. C.

2. "Administrative Management of a Large State Forestry Department." B. L. Orell, Division of Forestry, State Department of Conservation and Development, Olympia, Wash.

Discussion leader: DeWitt Nelson, Division of Forestry, State Department of Natural Resources, Sacramento, Calif.

Forest Protection

1. "Maintaining an Effective Organization to Control the Occasional Large Fire." Mayhew Davis, U. S. Forest Service, Albuquerque, N. Mex.

2. "The Significance of Weather Modification to a Forester." A. A. Brown, Division of Fire Research, U. S. Forest Service, Washington, D. C.

3. "Lightning Fire Research in the Northern Rocky Mountains." Jack S. Barrows, Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Mont.

4. "The Use of Trap Logs in the Control of Engelmann Spruce Beetle." Roy H. Nagel, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Fort Collins, Colo.

5. "Harvesting of Beetle-Killed Engelmann Spruce." Walter H. Schaeffer, College of Forestry, University of Washington, Seattle, Wash.

Joint Meeting

Wednesday, September 16

Division of Watershed Management

H. G. Wilm, Chairman
Marvin D. Hoover, Vice Chairman
Robert E. Dils, Secretary

Division of Range Management

Raymond Price, Chairman
M. W. Talbot, Vice Chairman
Grant A. Harris, Secretary

Morning Session

1. Introductory remarks by chairman of Division of Watershed Management.

2. "Interstate Watershed Management Problems of the Delaware River Basin." Harvey R. Frantz, Interstate Commission on the Delaware River Basin, Philadelphia, Pa.

3. "An Evaluation of the Effect of Watershed Treatment on Flood Runoff in the New England-New York River Basin Area." Norman R. Tripp and D. E. Whelan, both of Northeastern Forest Experiment Station, Upper Darby, Pa.

4. "Soil Moisture Trends under Old Field and Forest Cover in the Hill Section of Southern Illinois." William R. Boggess, University of Illinois, Robbs, Ill.

5. "Changes in Streamflow Characteristics Brought About by Cutting Forest Vegetation." E. A. Johnson, Southeastern Forest Experiment Station, Asheville, N. C.

6. "Effects of the Forest Floor on the Disposition of Rainfall in Pine Stands." P. B. Rowe, California Forest and Range Experiment Station, Berkeley, Calif.

Afternoon Session

1. Introductory remarks by chairman of Division of Range Management.

2. "Range Condition as Defined by Forage Production and Watershed Values." E. H. Reid, Forest Service, U. S. Department of Agriculture, Washington, D. C.

3. "Recent Developments in California Range Management." M. W. Talbot, California Forest and Range Experiment Station, Berkeley, Calif.

4. "Condition and Trend of Mountain Rangeland as Affected by Erosion." Lincoln Ellison, Intermountain Forest and Range Experiment Station, Ogden, Utah.

5. "Surface Runoff and Erosion

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FOREST POLICY

By W. B. GREELEY, Vice-President, West Coast Lumbermen's Assn. *American Forestry Series.* 278 pages, $5.50

An excellent study of the best known American foresters of forest policy in the United States and abroad. The policies of eighteen foreign countries as well as our own history are discussed as background to an understanding of forces now working out an American forest policy by a democratic process of experience and cooperation.

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FORESTRY AND ITS CAREER OPPORTUNITIES

By HARDY L. SHIRLEY, State University of New York. *American Forestry Series.* 492 pages, $6.50

Here is an interesting new text which is designed to orient the reader in the field of forestry. It sketches the historical background of forestry on a world-wide and nationwide basis, the recent progress made in the United States, and the outlook for the future. It presents situations which the forester is likely to face throughout his entire career in both the technical and policy fields.

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—about development of guns for applying your tree-marking paint?

—about the use of an identifiable ingredient in your tree-marking paint?

Increased efficiency of tree-marking paint, through such developments as SOUTHERN GLO's new Stay-Mixed Formula #71020 and its new pour-type can for Ready-Mix,—seems to increase interest in the development of professional equipment that keeps pace.

For instance, one forester sets forth what seems to be the standard professional requirements for a paint gun. His suggestions for "a satisfactory, convenient and fool-proof pressure paint gun to speed up tree marking" should make a lot of foresters, and perhaps a few manufacturers, start dreaming:

"We would like a gun designed to be carried on the operator's back rather than slung over one shoulder; substantial enough to avoid blow-up endangering the operator; light enough to avoid over-loading him. It should be equipped with pressure gauges and, it seems to us, would be simpler without built-in air pumps. Air intake nipple would permit charging either from pressure tanks at garages or filling stations, or from portable pumps like those which used to come with every automobile. Nozzles should have a sharp, positive closing valve to avoid leakage or drip."

Can you add anything to that? We at SOUTHERN GLO do not feel qualified to judge individual gun makes and models, but we agree that this column might be an excellent clearing house for the professional foresters' views on development of such equipment.

What do you think about "inclusion of some inert matter which might identify tree-marking paint in analysis?"

This suggestion comes from *Mr. C. H. Schaeffer*, Chief Forester with Deep South Forestry Consultants, in Tuscaloosa, Alabama, who continues: "I find tree-marking for cut and culls is getting to be as big a part of a forester's job as boundary line marking."

This column recalls that a large pulpwood consumer worked out a procedure for identifying their own paint by analysis some years ago. We've heard nothing on this recently,—although they may add the distinguishing ingredient themselves, before applying paint.

What is your experience along this line? Would such an ingredient be useful in other regions? If response indicates the need is pretty much universal, we believe SOUTHERN GLO might work out a solution to the problem.—What do you think?

SOUTHERN COATINGS & CHEMICAL COMPANY
Dept. H-2, Sumter, South Carolina

from Pine Grasslands of the Colorado Front Range." E. G. Dunford, Pacific Northwest Forest and Range Experiment Station, Portland, Ore.

6. "Range Management in the Southwest." Walter L. Graves, U. S. Forest Service, Taos, N. Mex., and C. E. McDuff, U. S. Forest Service, Albuquerque, N. Mex.

7. "Evaluation of Range-Watershed Conditions of Mountain Grasslands in Western Colorado." E. J. Dortignac, Southwestern Forest and Range Experiment Station, Tucson, Ariz., and G. T. Turner, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo.

Joint Meeting

Wednesday, September 16

Division of Forest Recreation

C. Frank Brockman, Chairman
Harthon L. Bill, Vice Chairman
William N. Parke, Secretary

Division of Forest-Wildlife Management

Ernest Swift, Chairman
J. V. K. Wagar, Vice Chairman
Galen Pike, Secretary

Morning Session

1. "Recreational Developments and Their Coordination with Other Forest Values on the Pike National Forest." Raymond E. Phillips, Pike National Forest, Colorado Springs, Colo.

2. "Recreational Activities—A Potent Public Relations Force in Forestry." Albert Arnst, *The Timberman*, Portland, Ore.

3. "Interpretation as a Means of Developing Public Responsibility for the Care of Public Lands." Edwin C. Alberts, Rocky Mountain National Park, Estes Park, Colo.

4. "Problems of Winter Use on Forest Lands." Felix C. Koziol, Wasatch National Forest, Salt Lake City, Utah.

Afternoon Session

1. "Wildlife Management in Relation to Multiple Use." Ralph R. Hill, U. S. Forest Service, Denver, Colo.

Discussion leader: Ralph E. Crowell, Mark Twain National Forest, Springfield, Mo.

2. "The Problems of Supervised Hunting on Public Lands." George H. Kelker, School of Forest, Range and Wildlife Management, Utah State Agricultural College, Logan, Utah.

Discussion leader: Lee E. Yeager, Colorado Cooperative Wildlife Research Unit, Fort Collins, Colo.

3. "Wildlife Values in Western Wilderness Area Management." James P. Gilligan, University of Michigan, Ann Arbor, Mich.

4. "Management of Black Hills Deer." Lester M. Berner, Department of Game, Fish and Parks, Pierre, S. Dak.

5. Division business meeting.

Society Dinner

Wednesday, September 16

William G. Meginnies, Toastmaster.

Address, J. D. Pender, attorney and conservationist, Denver, Colo.

Entertainment. The Pejn Indian dancers in a program of traditional dances of the Plains Indians in authentic costume; and Bob Cook's exhibition square dance set in a demonstration of typical Western pioneer American dances.

Field Trips

Thursday, September 17

A choice will be offered of three guided field trips to places of interest in the nearby Rocky Mountain area. Transportation by bus will be available at moderate cost. Lunches will be served enroute.

Monument Nursery

Trip number 1 to the Monument Nursery. Cost, $2 including transportation and luncheon. Leave 10 a.m.; return 3 p.m. Round-trip distance, 40 miles.

The Monument Nursery, operated by the U. S. Forest Service, is 20 miles north of Colorado Springs. Seeding was started in 1907. Production is 1½ to 2½ million trees annually of Douglas-fir, ponderosa pine, Engelmann spruce, and lodgepole pine. Total production has been 60 million trees, both seedlings and transplants. The output is used for reforestation on the national forests of the Rocky Mountain and Black Hills regions.

Manitou Experimental Forest and Range

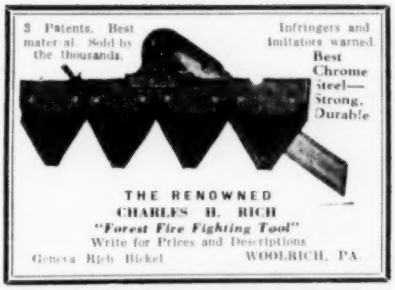
Trip number 2 to the Manitou Experimental Forest and Range. Cost, $2 including transportation and luncheon. Leave 9 a.m.; return 4:30 p.m. Round-trip distance 60 miles.

This research center, 28 miles northwest of Colorado Springs, is a unit of the Rocky Mountain Forest and Range Experiment Station. Its area is 26 square miles and is representative of the soil and vegetation of the Front Range.

It was established in 1936 to study problems of land use in relation to the management of all resources of the Front Range. Research is centered around range management, artificial revegetation, and watershed management. Foresters and range managers will see research work in progress on grasses, methods of stocking, types of range conditions, measurement of precipitation, and the relation of vegetative cover to accelerated runoff and erosion.

Gold Camp Road

Trip number 3 to Cripple Creek. Cost, $2.50 including transportation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The new Nelson Tree Marking Paint does not settle, thicken, or skin over—can be used direct from the can with no mixing. It is durable, not absorbed into wood or bark, retains high visibility—offers every property foresters have long wanted . . . (every color, too—yellow, white, orange, blue, red).
Packed in disposable, easy-to-carry quarts, the paint can screws directly onto the special new NEL-SPOT Tree Marking Gun. You just throw away used up cans, and save time, paint, equipment now wasted in extra handling.
The NEL-SPOT gun has a reversible tip in the nozzle to blow out dirt, a cap to prevent paint drying in the gun, a cleaning wire set in the cap to keep the orifice open.
For details on this revolutionary, time-mess-and-money-saving combination, WRITE:
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These instruments are *rugged* . . . designed to stand up without the need of constant adjusting even under the rough usage of forest work.

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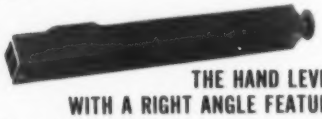
This compact instrument consists of a single ground triangular prism and it, therefore, cannot get out of adjustment. A plumb bob can be attached to the hook of the handle.

THE RIGHT ANGLE MIRROR

This instrument gives a slightly larger field of view and is adjustable. As an added feature, a small plumb bob is conveniently stowed in the handle.

THE DOUBLE RIGHT ANGLE PRISM

Consisting of two ground pentaprisms separated by a plano-parallel element, it can be *placed on a line between two points* and a third point at right angles can be sighted. A plumb bob can be attached or the instrument can be mounted on a staff.



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and luncheon. Leave 8:30 a.m.; return 5 p.m. Round-trip distance, 100 miles.

This trip is one of unusual scenic and historical interest. The route is over the famous Gold Camp Road, constructed on the road bed of the old Colorado Springs-Cripple Creek Railroad, which winds through tunnels and over the mountains to the mining camp of Cripple Creek and to Victor. The return will be by way of Gillette and Divide, thence down Ute Pass.

The party taking this tour will encircle Pike's Peak, and will have splendid views of the plains and the Sangre de Cristo Mountains to the South and West.

Other Trips Available

In addition to the foregoing guided trips, opportunities will be available for numerous individual tours to places of regional interest. The summit of Pike's Peak can be reached by automobile or by cog railroad. An incline-railroad runs up the east slope of the peak.

An interesting trip over mountain roads with many scenic attractions may be made to Devil's Head Mountain where the Pike National Forest maintains a lookout station.

Several good highways traverse the Pike National Forest. U. S. 24 from Colorado Springs through South Park to Buena Vista crosses the south end of the forest. U. S. 285 from Denver to Antero Junction crosses the northern portion. At Lake George on U. S. 24 two side trips may be made: one to the Eleven-mile Canyon recreational area and reservoir, a water storage area for Denver; and the other up Tarryall Creek to Jefferson.

The silvicultural and forest manager will find the Fraser Experimental Forest of unusual interest. It is near Fraser, Colo., in the high country on the Arapaho National Forest west of Denver. From Fraser, the trip may be continued to Grand Lake and across the Trail Ridge Road into famous Rocky Mountain National Park, from which one may return south to Denver or north to Fort Collins, site of Colorado A & M College School of Forestry and Range Management and headquarters for the Rocky Mountain Forest and Range Experiment Station.

These suggested individual trips do not exhaust the number available. Many shorter sight-seeing tours may be taken in the vicinity of Colorado Springs, and representatives of local agencies will be on hand to assist those desiring them.

Transportation

Colorado Springs is easily accessible by airlines, railroads, and highways.

The airlines are Braniff, Continental, and Monarch.

The railroads are Chicago, Rock Island and Pacific; Atchison, Topeka and Santa Fe; Denver, Rio Grande & Western; Colorado and Southern (Burlington); and Missouri Pacific.

Three U. S. Highways pass through the city—U. S. 85-87, north and south; and U. S. 24, east and west.

Hotel Reservations

A special Society committee will handle requests for hotel reservations, which will be filled in the order received. This committee cannot be responsible for failure to obtain rooms by those making reservations direct with hotels.

The reservation coupon is for your convenience in requesting hotel rooms. Please send your request to the committee to avoid delay and confusion. Room assignments will be made promptly, and you will receive a confirmation in two weeks or less. Anyone desiring to make a reservation without tearing a page from the JOURNAL may do so simply by supplying the necessary information in a letter addressed to the committee.

The Antlers Hotel is the headquarters for the meeting. But since the Antlers cannot accommodate everyone, other hotels and motels in the city will cooperate in housing members.

There follows a list of hotels available for this meeting and their daily rates. All except the Broadmoor are within five minutes' walking time of the City Auditorium where most of the sessions will be held. All rates listed are European plan (without meals).

In addition there are numerous good motels and tourist lodges within two to five miles of City Auditorium. Those who will have their own automobile transportation will find these motels quite convenient and somewhat less expensive than the city hotels.

Hotels

All hotels listed are within five minutes' walking time of City Auditorium, except the Broadmoor, which is 4½ miles. Daily room rates with bath (European plan, without meals) are shown.

Antlers Hotel, Cascade and Pikes Peak Avenues, the headquarters hotel for the meeting. Single rooms, $7 to $9. Double and twin-bed rooms, $9 to $11. Suites, $12 to $20.

Alta Vista Hotel, 118 North Cas-

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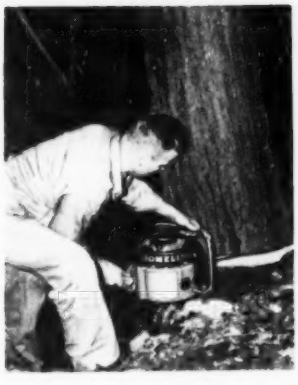

When you're cutting wood all the time you need a saw that's on the job all the time. Time out for repairs runs up your operating costs and runs down your production and profits.

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Hotel Reservations Committee,
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c/o Chamber of Commerce,
Colorado Springs, Colorado.

Please make a reservation for the following room accommodations for arrival on September _____ a.m. p.m. Departure date, September _____.

I understand that accommodations will be provided at the daily rate specified, if available; otherwise the next nearest rate will apply.

Single room with bath. Rate $ _____.

Double-bed room with bath. Rate $ _____.

Twin-bed room with bath. Rate $ _____.

Suite (parlor, twin-bed room, and bath). Rate $ _____.

Other (specify accommodations desired). _____

_____. Rate $ _____.

First choice hotel _____.

Second choice hotel _____.

Motel or tourist court (specify accommodations desired).

_____. Rate $ _____.

The above room accommodations are requested for the following persons, in addition to myself. (Print or type names and addresses legibly.)

My name: _____

Street address: _____

City, zone, state: _____

cade Avenue. Single rooms, $4 to $6. Double and twin-bed rooms, $6 to $9.

Broadmoor Hotel (4½ miles to City Auditorium). Single rooms, $10. Double and twin-bed rooms, $15.

Acacia Hotel, 104 East Platte Avenue. Single rooms, $4.50 to $6. Double and twin-bed rooms, $7 to $9.

The Alamo Hotel, 126 South Tejon Street. Single rooms, $4 to $6. Double and twin-bed rooms, $6 to $14.

Joyce Hotel, 10 South Weber Street. Single rooms, $6. Double rooms, $8. Twin-bed rooms, $10 to $12. Double rooms with connecting bath, $5 and $6.

Motels and Tourist Courts

The Hotel Reservations Committee has listed 60 motels and tourist courts in Colorado Springs and Manitou Springs, all within two to five miles of City Auditorium.

Daily rates range from $3.50 to $10 for one or two persons; $5 to $15 for three or four persons; and $8.50 to $20 for four to six persons.

Members, who request reservations from tourist courts, will receive, with their confirmation of the reservation, a notice to send an advance payment for one day. This is necessary to hold the reservation.

Program Committee

The chairman of the committee in charge of the program for the meeting is J. V. K. Wagar, School of Forestry and Range Management, Colorado A & M College, Ft. Collins, Colo.

The other members of the committee are David H. Canfield, T. J. Fillas, W. G. McGinnies, and Harry R. Woodward.

Arrangements Committee

The chairman of the Committee on Arrangements is Raymond E. Phillips, U. S. Forest Service, Colorado Springs, Colo.

Assisting Mr. Phillips and heading up special task committees are the following:

Information and Publicity, J. N. Hessel.

Registration, R. B. McKennan.

Reception and Welcome, David S. Nordwall.

Society Dinner, Henry M. Shank.

Chuck Wagon Dinner, Ralph R. Hill.

Hotel Reservations, Elmer R. Miller.

Exhibits, Clinton H. Wasser.

Projection and Amplifying, David H. Canfield.

Meeting Rooms, Jacob Roeser, Jr.

Field Trips, Everett Lee.

Ladies' Activities, Mrs. R. E. Phillips.

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Chemical spraying gives better results than mechanical methods in keeping brush back to give full road width and adequate visibility. Esteron® Brush Killer and Esteron® 245 do a good job of controlling brush and trees along switchback roads, logging roads, access roads and communication lines—and lessen the need for slashing and bulldozing.

Esteron Brush Killer and Esteron 245 have proved their worth in year-around basal bark spraying and frill application to control weed trees. Esteron 245 is especially effective on hardwoods. Esteron Brush Killer is a mixture of low-volatility propylene glycol butyl ether esters of both 2,4-D and 2,4,5-T—while Esteron 245 contains the same type esters of 2,4,5-T only. Both products are also useful for spraying cut stumps and stubs to prevent resprouting.

Lumber company superintendents and foresters are invited to write for detailed information on the use of Dow's hard-hitting brush killers for easier maintenance of forest roadways and for timber stand improvement. THE DOW CHEMICAL COMPANY, *Agricultural Chemical Department*, Midland, Michigan.

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JACKSON, MISSISSIPPI

Northern Rocky Mountain Section Elects Officers

The following officers were elected by the Northern Rocky Mountain Section, S.A.F., for the year which began May 1.

W. C. Hodge, chairman, Tree Farmers, Inc., 924 South Third West, Missoula, Montana.

C. D. Leaphart, vice chairman, Division of Forest Pathology, Federal Building, Missoula, Montana.

Jack E. Schmautz, secretary-treasurer, Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Montana.

Central Rocky Mountain Section Meeting

The Central Rocky Mountain Section was host to the Council at a dinner meeting held May 22 in the Albany Hotel, Denver, Colo. Dr. Noel D. Wygant, chairman of the Section, presided. Fifty-two members and guests attended.

J. V. K. Wagar outlined the program for the national S.A.F. meeting in Colorado Springs next September 14-17. Raymond E. Phillips explained the arrangements being made for the meeting, including field trips.

A discussion of Society affairs was led by Henry Clepper, executive secretary, following which George L. Drake, president of the Society, gave an address on sustained-yield management, followed by color motion pictures of the 1952 forest festival at Shelton, Wash.

New Section officers elected for the coming years are:

Chairman, Jacob Roeser, Jr., U. S. Forest Service, Colorado Springs, Colo.

Vice chairman, Theodore J. Fillas, 1091 South Madison Street, Denver 10, Colo.

Secretary, Lowell H. Russell, 2560 Upham Street, Lakewood, Colo.

By vote of the Section members present at this meeting, the Section authorized the executive committee to protest against passage of H.R. 4023, the so-called stockmen's bill, as not being in the public interest.

In order to carry the report of the Council meeting and the program for the annual meeting in this issue, it was necessary to postpone publication of a number of Society Affairs items.

Allegheny Summer Meeting

The summer meeting of the Allegheny Section will be held on August 6-8 in northwestern Pennsylvania. Headquarters of the meeting will be the Blue Jay Camp of the Department of Forestry, Pennsylvania State College. This camp is located near Marienville. Half-day field trips will be made on August 7 in the Allegheny National Forest and in the forest of the Armstrong Forest Company, and on August 8 in the Cook State Forest.

Members from other Sections are invited and may be attracted by the low cost of the facilities provided by State College. It is planning evening meals for August 6 and 7, breakfasts for August 7 and 8, and lunch for August 7. For those meals and lodgings for two nights the cost will be only $9.00 per man. However, members from other Sections should notify Professor Maurice K. Goddard, Department of Forestry, Pennsylvania State College, State College, Pa., by July 20 if they plan to attend.

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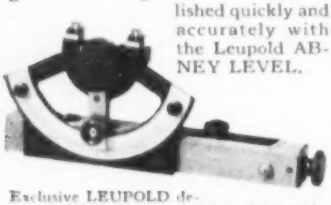

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Nominations Received

On the day this issue went to press the following nominations had been received.

For President: Walter J. Damtoft, Canton, N. C. (Council member, 1944-1947.)

E. L. Demmon, Asheville, N. C., (Vice president, 1952-1953.)

Gordon D. Marckworth, Seattle, Wash. (Council member, 1950-1953.)

For the Council: W. C. Hammerle, New Orleans, La.

E. F. Heacox, Tacoma, Wash.
P. D. Hanson, Missoula, Mont.
D. E. Hess, Gettysburg, Pa.
R. Vance Miles, Jr., Tuscaloosa, Ala.
Galen W. Pike, Duluth, Minn.
Carl A. Rishell, Washington, D. C.
John W. Squires, Jackson, Miss.
T. D. Stevens, East Lansing, Mich.
J. Herbert Stone, Portland, Ore.
Charles L. Tebbe, Philadelphia, Pa.
R. H. Westveld, Columbia, Mo. (Council member, 1952-1953.)
Edwin G. Wiesehuegel, Norris, Tenn.

For Fellow: H. O. Cook, Mass.
Charles S. R. Cowan, Wash.
George L. Drake, Wash.
Paul M. Dunn, Chile
Leo A. Isaac, Ore.
R. E. McArdle, D. C.
Elwood B. Moore, N. J.
R. R. Reynolds, Ark.
F. X. Schumacher, N. C.
T. Schantz-Hansen, Minn.
P. C. Wakeley, La.

(For details, see page 458, June issue.)

Announcement of Applicants

Applicants for admission, advancement, or reinstatement whose membership applications were received in the Society office during the month of May are listed below.

Action regarding the eligibility of these applicants will be taken by the Council as of August 1, 1953. Any communications from voting members relating to the membership eligibility of any of these applicants should be received in the Society office prior to that date.

Allegheny Section

Student Grade

PENNSYLVANIA STATE COLLEGE

Greth, J. W.	Muench, J.
Groman, W. A.	Robinson, G. R.
James, R. E.	Zylinski, J.

Junior Grade

Chalfant, C. D., Cons. Forester, Gibsonia, Pa.; Pa. State, B.S.F., 1941.

Rebele, C. P., 102 N. Tenth St., Allentown, Pa.; Pa. State, B.S.F., 1952.

Students Eligible for Automatic Advancement

PENNSYLVANIA STATE COLLEGE

Bowman, R. C.	Krewson, C. F.
Dambly, D. A.	Lowry, G. L.
Graef, W. J.	Mitterling, N.
Graham, J. D.	Schrey, F. J.
Horsmon, F. M.	Schuler, R. W.
Hoyer, G. E.	Sheble, E.
Jones, R. E.	Shrauder, P. A.
Kemp, G. R.	Shunk, B. H.

Affiliate Grade

Somes, H. A., Forestry Aid, N. E. Forest Exp. Sta., New Lisbon, N. J.

Appalachian Section

Junior Grade

Students Eligible for Automatic Advancement

DUKE UNIVERSITY

Markley, J. H.	Winters, E. J.

NORTH CAROLINA STATE COLLEGE

Bean, S. D.	Kriling, R. E.
Corbett, K. M.	Noble, M.
Crutchfield, D. M.	Webb, C. E.
Derro, J. J.	Wheless, J. H.

Member Grade

Gustafson, R. O., Forester, W. Va. Pulp and Paper Co., Georgetown, S. C.; Univ. of Mich., B.S.F., 1937; M.F., 1938. Reinstatement.

Heberling, R. B., Forester, S.C.S., Spartanburg, S. C.; Pa. State, B.S.F., 1925. Reinstatement.

Huff, R. E., Forest Appraiser, Equitable Life Assurance Society of the U.S., Mars Hill, N. C.; N. C. State, B.S.F., 1941. (Junior, 1943).

Affiliate Grade

Jacobs, E. R., Jr., Forester, U.S.F.S., Pisgah Forest, N. C.; Univ. of Conn., B.S., (Forestry) 1948.

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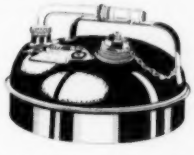

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Central Rocky Mountain Section

Junior Grade

Students Eligible for Automatic Advancement

COLORADO A & M. COLLEGE

Anderson, J. C. — Hamerski, F. D.
Binford, B.

Central States Section

Student Grade

MICHIGAN STATE COLLEGE

McStoy, J. H. — Rugg, R. F.
Pfeiffer, C. A. — Shutt, A. L.

UNIVERSITY OF MICHIGAN

Haas, R. G. — Sharer, D. R.
Heikkenen, H. J.

Junior Grade

Students Eligible for Automatic Advancement

MICHIGAN STATE COLLEGE

Armstrong, H. G. — Leist, E. J.
Drury, H. P. — Marty, R. J.
Gebben, R. A. — Phillips, E. C.
Hayden, D. A. — Schoener, R. J.
Hubbard, R. G. — Schoonover, N. B.
Hubbell, R. J. — Stone, R. N.
Karsten, N. J. — Toth, L. L.
Kent, L. P. — Young, R. F.

UNIVERSITY OF MICHIGAN

Dunlap, W. W. — Smithberger, T. J.
Mosher, H. L. — Wardner, A. B.
Phillips, J. F.

PURDUE UNIVERSITY

Heiges, D. W. — Radi-h, G. J.
Lenox, J. T. — Troskey, F. T.
Percival, D. H. — Wright, J. R.
Phelps, R. C.

Columbia River Section

Student Grade

OREGON STATE COLLEGE

Coughlan, B. M. — Gunter, L. E.

Junior Grade

Fields, J. F., Forester, Bur. of Land Mgmt., Roseburg, Ore.; Mont. State, B.S.F., 1951.
Kirnak, A., Lbr. Sales, Heidner and Co., Portland, Ore.; Pa. State, B.S.F., 1937.
Mitchell, R. W., Choker Setter, Weyerhaeuser Tbr. Co., Sutherlin, Ore.; Purdue Univ., B.S.F., 1950. Reinstatement.
West, J. E., Forester, Bur. of Land Mgmt., Roseburg, Ore.; Univ. of Mass., B.S.F., 1950.
Worthman, C. D., Forester, U. S. Indian Service, Klamath Agency, Ore.; Univ. of Calif., B.S.F., 1949.

Students Eligible for Automatic Advancement

OREGON STATE COLLEGE

Baker, R. J. — Larson, J. E.
Brown, D. J. — Naish, R. A.
Chapman, D. W. — Reedy, G. L.
Christie, J. L. — Season, J. A.
Dobyns, W. L. — Steers, I. A.
Green, F. L.

Affiliate Grade

Norton, R. G., Asst. to Sales Mgr., Wood Products Co., Portland, Ore.; Oregon State, B.S., (Forest. Products), 1951.

Gulf States Section

Junior Grade

Valentine, W. C., La. Forestry Comm., Baton Rouge, La.; La. State, B.S.F., 1937. Reinstatement.

Students Eligible for Automatic Advancement

LOUISIANA STATE UNIVERSITY

Bryant, R. L. — Mizell, L.
Ensminger, A. B. — O'Neal, J. P.
Hastings, E. F. — Ward, C. E.
Kitt, P. D. — Wright, L. O.

Affiliate Grade

Akin, J. W. Surveyor, Kirby Lbr. Corp., Silsbee, Texas L.P.I., B.S., (Forestry), 1951.
Bace, A. C., Jr. Forester, Kirby Lbr. Corp., Houston, Texas; Okla. A & M., B.S., (Forestry), 1951.
Hubbard, M. I., Forest Tech., Int. Paper Co., Coushatta, La.; Ark. A & M., B.S., (Forestry), 1953.

Inland Empire Section

Student Grade

UNIVERSITY OF IDAHO

Lynch, J. C. — Taynton, R.

Junior Grade

Students Eligible for Automatic Advancement

UNIVERSITY OF IDAHO

Bay, R. R. — McGill, T. F.
Bonnett, H. W. — Naab, W. P.
Estes, K. M. — Nagle, W. P.
Estheimer, C. R. — Scott, D. W.
Gleaves, W. W. — Steffenson, L. M.
Jaquish, E. D. — Walker, A. W.

Member Grade

Arneson, L., Forest Engr., Potlatch Forests, Inc., Lewiston, Idaho; Univ. of Idaho, B.S.F., 1947. (Junior, 1947).

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BIRMINGHAM, ALABAMA

Affiliate Grade

Hunter, R. D., Fire Control Aid, Coville Natl. Forest, Spokane, Wash.; Wash. State, B.S., (Forestry), 1952.

Intermountain Section

Junior Grade

Students Eligible for Automatic Advancement

UTAH STATE AGRICULTURAL COLLEGE

Cachrane, J. S. Smith, W. E.
Gara, R. I.

Kentucky-Tennessee Section

Junior Grade

Buller, G. B., Forestry Spec., S.C.S., Cookeville, Tenn.; Univ. of Conn., B.S. (Forestry), 1932.

New England Section

Student Grade

UNIVERSITY OF MASSACHUSETTS

Doe, A. P. Nason, B. W.
Greenberg, S.

Junior Grade

Students Eligible for Automatic Advancement

UNIVERSITY OF MAINE

Bennett, D. R. Phelon, R. F.
Getchell, W. A. Simpson, H. I.
Kellogg, R. M. Wheeler, R. H.
Penoyar, W. E.

Affiliate Grade

Leeman, K. K., U.S.A.F.; Univ. of N. H., B.S., (Forestry), 1951.

New York Section

Junior Grade

Students Eligible for Automatic Advancement

STATE UNIVERSITY OF NEW YORK

Bergmann, T. S. Miner, N. H.
Carey, W. H. Raney, D. W.
Dzurissin, A. F. Schubert, T. H.
Kupillas, E. A. Suters, P.

Northern California Section

Junior Grade

Goddard, D. W., Forest Trainee, Calif. Div. of Forestry, Santa Rosa, Calif.; Iowa State, B.S.F., 1949.
Smith, H. E., Co-owner of Tree Service, Carmel, Calif.; Univ. of Wash., B.S.F., 1949.

Students Eligible for Automatic Advancement

UNIVERSITY OF CALIFORNIA

Agrons, B. Z. Kyer, G.
Ashby, V. W. Lavender, J. S.
Bourgeois, P. A. Mace, R. B.
Brichacek, O. J. McCallum, W. B.
Brown, R. L. McFarland, F. E.
Charter, W. G. Menkens, H. E.
D'Amelio, J. F. Muir, R. J.
Everett, D. W. Nicholson, J. E.
Gentry, G. L. Reinecke, R. H.
Gladish, E. N. Reukema, D. L.
Hall, E. J. Steely, J. W.
Hansen, H. J. Trammel, M. L.
Wasson, R. B.

Member Grade

Bacon, R. S., Forester, U.S.F.S., Willows, Calif.; Univ. of Calif., B.S.F., 1923; Univ. of Mich., M.S.F., 1924. Reinstatement.

Affiliate Grade

Morris, M. D. Forest Rgr., U.S.F.S., Placerville, Calif.

Ozark Section

Junior Grade

Robine, C. L., Farm Forester, Mo. Cons. Comm., Monett, Mo.; Univ. of Mo., B.S.F., 1951.

Students Eligible for Automatic Advancement

UNIVERSITY OF MISSOURI

Beck, P. L. Hankins, R. T.
DeMoor, J. F. Oechsle, E. H.
Gould, T. L. Schores, D. D.
Green, J. W. Smith, H. W.
Grisham, E. W.

Puget Sound Section

Junior Grade

Bowman, N. B., Weyerhaeuser Thr. Co., Monroe, Wash.; Univ. of Mich., B.S.F., 1952.
Sander, G. H., Service Forester, Wash. State College, U.S.F.S., Olympia, Wash.; Univ. of Mo., B.S.F., 1951.

Students Eligible for Automatic Advancement

Hawley, G. S. Sheldon, J. G.
Hayes, P. L. Simmons, D. V.
Lee, R. E. Smith, V. W.
Matthias, J. S. Strum, E. C.
Orr, P. W. Swanson, K. E.
Pitzler, D. W. Trappe, J. M.

Southeastern Section

Junior Grade

Byers, D. V., Inspector, Southern Pine Inspection Bureau, New Orleans, La.; Mont. State, B.S.F., 1950; Duke Univ., M.S.F., 1951.
Van Cleave, A. K., Forester, St. Regis Paper Co., Fargo, Ga.; A.P.I., B.S.F., 1950.

Students Eligible for Automatic Advancement

ALABAMA POLYTECHNIC INSTITUTE

Buettner, R. T. Smith, D. J.
Crain, L. B. Smith, R. L.
Dale, C. N. Stallworth, D. R.
Gibson, G. E. Struck, C. H.

UNIVERSITY OF FLORIDA

Flottman, A. H. Read, R. E.
Hill, H. J. Sparkman, E. K.
Lawyer, R. O.

UNIVERSITY OF GEORGIA

Cresch, G. L. Seymour, H. K.
Edwards, S. Shain, W. A.
Johnston, H. E. Vining, J. C.
Leonardi, S. A. Wainright, R. E.
Moore, S. L. Womack, B. L.
Schultz, W. J.

Affiliate Grade

Wade, O. W., Forest Supv., Southern Resin and Chemical Co., Glen Saint Mary, Fla.

Southern California Section

Junior Grade

Paul, T. J., Head Chainman, W. H. Fair, Los Angeles, Calif.; Utah State Agric. College, B.S.F., 1951.

Southwestern Section

Junior Grade

Diggs, R. L., Forester, U.S.F.S., Springerville, Ariz.; Mass. State College, B.S., (Forestry), 1931; Yale, M.F., 1932. Reinstatement.
Severtson, H. L., Asst. Rgr., U.S.F.S., Alpine, Ariz.; Mont. State, B.S.F., 1950.

Member Grade

Liedman, L., Forester, U.S.F.S., Springerville, Ariz.; Colo. A. & M., B.S.F., 1933; Yale, M.F., 1936. Reinstatement.

Upper Mississippi Valley Section

Junior Grade

Hanson, W. R., Farm Forester, Minn. Forest Service, Brainerd, Minn.; Univ. of Minn., B.S.F., 1950.

Students Eligible for Automatic Advancement

IOWA STATE COLLEGE

Smith, J. B. Szymeczek, F. O.

UNIVERSITY OF MINNESOTA

Shaw, D. B.

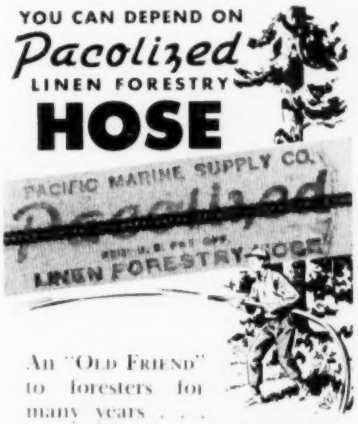
Member Grade

Schoeffler, F. A., Special Veterans Agric. Instructor, Lisbon High School, Lisbon, N. Dakota; Univ. of Idaho, B.S.F., 1949 (Junior, 1948).

Foreign

Corresponding Grade

Entrican, A. R., Director of Forestry, New Zealand Forest Service, Wellington, New Zealand; Auckland Univ., C.E., 1919.
Premrasami, T., Government Official, Royal Forest Dept., Bangkok, Thailand; Univ. of Mich., B.S.F., 1952; M.F., 1953.



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Forestry News

8 Forest Service Employees Get Agriculture Dept. Awards

Dr. S. R. Gevorkiantz, JOURNAL OF FORESTRY associate editor, and seven other members of the Forest Service, were given superior service awards at a Department of Agriculture ceremony in Washington, May 13.

Senator George Aiken of Vermont was principal speaker, and the awards were presented by Secretary of Agriculture Ezra Taft Benson.

Dr. Gevorkiantz, of the Lake States Forest Experiment Station, was honored "for valuable contributions to forestry in application of statistical methods to research problems, predicting forest growth, developing composite volume tables, and forest measurements generally, always stressing simplified techniques."

The other Forest Service employees honored were:

Ramiro Agosto Ruiz, La Mina Station, Palmer, P. R., for bilingual education work, and for administration of the Caribbean National Forest's maintenance activities.

John S. Bowen, Pacific Northwest Region, for work in accident prevention in that region.

Clyde W. Doran, Rocky Mountain Forest and Range Experiment Station, for research in range reseeding and noxious plant control.

Robert P. A. Johnson, Forest Products Laboratory, for leadership in the proper and effective utilization of wood.

William P. Kramer, Administrative Management and Information, for developments in administrative management.

Jose Guadalupe Martinez, Carson National Forest, for rescue of a child from the Red River.

Douglas C. Morrison, Jr., Sitgreaves National Forest, for organizing the rescue of several hundred elk hunters trapped by deep snow in the forest.

Golden Anniversary of Forestry Training at M.S.C.

Two hundred fifty persons gathered on the East Lansing campus of Michigan State College May 22 and 23 to mark a half century of professional forestry training at that institution.

At a morning meeting of the Forestry Alumni Association, Ovid A. Alderman (class of 1920), state forester of Ohio, was elected president, succeeding Durward Robson (class of 1923), chief of the Field Administration Division, Michigan Department of Conservation.

A buffet luncheon was served in the Forestry Cabin, setting of many fond school memories for alumni, and was followed by an afternoon general meeting under the chairmanship of T. D. Stevens, head of the Department of Forestry. Clifford M. Hardin, dean designate of the School of Agriculture welcomed the group and James H. Denison, administrative assistant to M.S.C. President John A. Hannah, discussed that institution's current development and future plans. Dean George A. Garratt (class of 1920) of the School of Forestry, Yale University, spoke on the fields of education and research in forestry and Paul A. Herbert, director of the M.S.C. Division of Conservation, told of the history and present developments in forestry training at the school, together with plans for future progress.

George H. Collingwood (class of 1911) of the Library of Congress, Washington, presided as toastmaster at the evening banquet which was well attended by alumni, their families, faculty members, and friends of forestry.

G. Mennen Williams, Governor of Michigan, addressed the group, speaking of the state's vital interest in its natural resources. Earl W. Tinker (class of 1913), American Pulp and Paper Association, New York, stressed the recognition of forestry training by industry as preparing men for a vital field of endeavor.

C. M. Granger, retired assistant chief of the Forest Service, represented the class of 1907. S. T. Dana, dean emeritus, and Stanley G. Fontanna, dean, both of the School of Natural Resources of the University of Michigan, were in attendance.

Saturday, May 23, was devoted to field trips to forestry properties and various features of the department's and school's establishments.

Forestry at Michigan State College followed the pattern of gradual evolution typical of most new things. It was first offered as a distinct, one-term course in 1886. In 1895 it was a required three-hour course for sophomores in agriculture during the sum-

← HOME of the Department of Forestry at Michigan State College.

mer term. It reached the status of a separate curriculum, by direction of the State Board of Agriculture, in 1902, and was approved at the end of that year and included in the 1903 college catalog, with E. E. Bogue appointed professor of forestry.

Forestry training, since that early start, has grown at M.S.C. It grew both in intensity and in diversity of coverage, and finally, in 1950, a reorganization of curricula took place with the creation of a new Division of Conservation within the School of Agriculture. Paul A. Herbert is director of this division, having served since 1930 as head of the forestry department. Within the division there are now four departments: the Department of Forestry, headed by T. D. Stevens; the Department of Fisheries and Wildlife, headed by P. I. Tack; the Department of Land and Water Conservation, headed by Frank Suggitt; and the Department of Forest Products, headed by A. J. Panshin.

Under this reorganization the new Department of Forestry becomes the only department of the division offering a professional degree in forestry and immediate eligibility for Junior Membership in the S.A.F. by graduates. Various courses, previously handled by the Department of Forestry, have been assigned to the other departments of the new division. Undergraduate work in each of the four options of the division is therefore sharpened in the field of specialization of the student.

The Division of Conservation in the current school year has an enrollment of 390, of whom 125 are in the Department of Forestry.

Twelve hundred foresters during the past 50 years have received degrees from Michigan State College.

U of Michigan to Mark 50 Years of Forestry Training

Alumni of the School of Natural Resources and its predecessors, the School of Forestry and Conservation, and the Department of Forestry of the College of Literature, Science and the Arts, will gather at Ann Arbor on October 1, 2, and 3 of this year to celebrate the fiftieth anniversary of professional instruction in forestry and allied natural resource fields at the University.

Among the events scheduled are a meeting of the Michigan Foresters' Association on Thursday afternoon, October 1; an informal gathering of alumni and faculty at the Michigan Union Thursday evening; a formal convocation, Friday morning; a picnic lunch at Saginaw Forest followed by trips through Saginaw Forest, Stinchfield Woods and the Wood Technology Laboratory, Friday afternoon; a tea for the ladies at the Michigan League Friday afternoon; and a banquet Friday evening. Saturday morning will be given over to more field trips, and in the afternoon the alumni will watch the Michigan-Tulane football game.

Honorary degrees will be conferred at the convocation, which will be presided over by President Hatcher. The main address at the convocation will be delivered by Dr. R. E. McArdle, chief of the U. S. Forest Service, and an alumnus of the school.

To commemorate the occasion, there will be published a history of the activities of the university in the teaching of forestry and allied natural resource subjects, commencing with the first forestry instruction by Professor Spalding in the academic year 1881-82 and following through the periods of professional instruction under Professor Filibert Roth and Deans Dana

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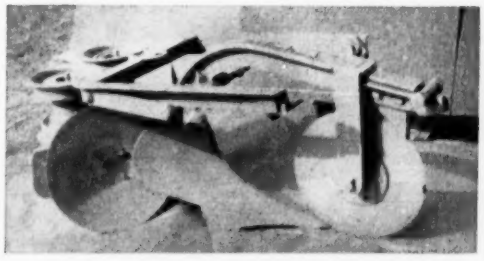

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and Fontana. The publication will also contain an account of accomplishments by alumni in the various resource fields. Copies of the history will be presented to alumni at the reunion and will also be available to those who are not able to attend.

Allied

Resources for the Future Plans December Conference

Resources for the Future, Inc. will hold its Mid-Century Conference in Washington, December 2 to 4, under the chairmanship of Lewis W. Douglas, it was announced at an April meeting of the council of sponsors of the conference. Ninety persons attended, representing business, agriculture, labor, conservation, recreation and wildlife, science, education, state and local government, and civic groups.

Dr. R. G. Gustavson, chancellor of the University of Nebraska, was elected president of Resources for the Future, and Horace M. Albright, president of the United States Potash Company, was chosen chairman of the board. Mr. Albright has been serving as president pending election of a full-time operating head. (JOURNAL OF FORESTRY May, 1953.)

In addition to Mr. Douglas, who is chairman of the board of the Mutual Life Insurance Company of New York and former U. S. Ambassador to the United Kingdom, the following officers were appointed: Herman W. Steinkraus, president of the Bridgeport Brass Co., vice-chairman; Lewis Webster Jones, president of Rutgers University, and Karl T. Compton, chairman of the corporation of the Massachusetts Institute of Technology.

Sections of the conference will cover: the general outlook for resources, competing demands for use of land, utilization of land resources, water resource problems, problems of nonfuel minerals, getting the most out of energy resources, world supply, common problems in resources research, public attitudes on resources development, and patterns of cooperation.

Resources for the Future, Inc. was established last year as a non-profit corporation by a committee of citizens who accepted an invitation from the Ford Foundation to serve as an advisory group on resources, and to assist the officer of the Foundation in planning a program and to work in the field of research and education for resources development and conservation. The Ford Foundation has given a $150,000 grant to conduct the Mid-Century Conference.

Industry

Full Time Forest Economist For N.L.M.A.

Alf Zahl Nelson has been appointed full time forest economist for the National Lumber Manufacturers Association, Washington, D. C.

Mr. Nelson, a native of Minneapolis, has served as a part time forest consultant to the N.L.M.A. since Feb-

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ruary, 1950, making his home in New Ipswich, N. H. Prior to that, he held positions with the Interior Department, the National Resources Board and the U. S. Forest Service.

Nelson served as chief of the Forestry Division of the Bureau of Land Management from January, 1948 to April 1949. When he resigned from that post to enter the private forestry consulting field, he was cited for meritorious service by then Interior Secretary Julius Krug.

During the early days of World War II, Nelson served as forest economist for the National Resources Board. Before that he held a number of posts with the U. S. Forest Service, dating back to 1929 when he started as a forest guard on the Lolo National Forest in Montana.

Nelson received a bachelor's degree in forestry at the University of Minnesota in 1931 and a master's degree at Yale in 1933.

He is a member of Xi Sigma Pi, honorary forestry fraternity, Sigma Xi, an honorary scientific society, the Society of American Foresters, and the American Forestry Association.

C. of C. Resources Policy

The Chamber of Commerce of the United States has changed its stand on some national issues in the field of natural resources.

Policies affecting federal lands and forestry, revised at the Chamber's recent annual meeting are:

Payments in Lieu of Taxes. The old policy said that payments should be based on valuation instead of percentage of return. The new policy says that the payments should be comparable in amount to taxes on similar privately held properties, and expresses the view that such payments are a poor substitute for private ownership.

Disposition of Federal Lands and Other Real Estate. This new policy calling for an inventory of federal real estate is substantially the same except that a provision in old policy calling for more accurate data on lands not recommended for private ownership was dropped.

Grazing Rights. This new policy calling for the handling of grazing permits by statutory law, is the same as the old policy, except for minor editorial revisions.

Government Timber Sales. This is a new policy. It calls for federally owned mature timber to be marketed on a sound management basis through competitive bidding, open to firms of all sizes or by establishment of a sustained yield unit when approved by public hearing. It adds that timber access roads should be constructed by private capital wherever economically feasible, or, where not feasible, by federal appropriation to be repaid by private operators as stumpage is cut.

Cummings Joins Consulting Firm

The firm of Mason, Bruce and Girard, forest consultants of Portland, Oregon, has announced that Lyle A. Cummings has joined the firm as a partner.

Education

Institute of Forest Products Now Administered by U. of Wash.

The Forest Products Commission of the State of Washington announces that, effective May 15, 1953, the technical administration of the Institute of Forest Products was transferred to the College of Forestry of the University of Washington.

To effect this change in policy, Gordon D. Marckworth, dean of the College of Forestry, has been named technical director of the Institute of Forest Products. This change will facilitate the activities of the Institute but will in no way change its past policies, for it will still operate under the Forest Products Commission and as a part of the Department of Conservation and Development. This action was necessary because of the limited funds provided in the budget by the state legislature.

The Institute will continue the work now in progress, and during the summer months will concentrate on work with the operators of small sawmills, on chemical debarking, on the marketing of farm woodland products, and a study of log and truck weighing devices.

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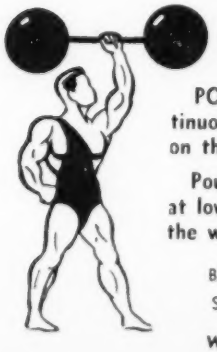

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Washington Honors Willis Corbitt

The University of Washington Foresters' Alumni Association selected Willis G. Corbitt, forest engineer from Molalla, Oregon, as "Honored Alumnus" at their annual reunion held Saturday, May 9, at the Pack Demonstration Forest near La Grande, Washington.

Corbitt is forest engineer on the Clackamas Tree Farm of the Crown Zellerbach Corporation.

Also honored was E. T. Clark, of Seattle, secretary-manager of the Pacific Northwest Loggers Association, who was given an honorary membership in the Alumni Association. Teaching at the College of Forestry of the University of Washington, Clark was the first professor of logging engineering in America.

Dr. Henry Schmitz, President of the University and an alumnus of the Washington Forest School, was guest of the day. More than one hundred forestry grads were present. Arthur K. Roberts, of Portland, President of the University of Washington Foresters' Alumni Association, presided at the reunion meeting.

Gilmore Joins A.P.I. Staff

Alvan Ray Gilmore of Pensacola, Florida has joined the Alabama Polytechnic Institute Agricultural Experiment Station as assistant forester.

In this position Mr. Gilmore is assistant project leader of the forest nursery research program which is being conducted in cooperation with the Alabama Forest Products Industry.

ALVAN RAY GILMORE

Gilmore holds the B.S. degree in forestry from the University of Florida and M.F. degree from Duke University. Before joining the station staff, he was an instructor at the University of Florida. He is a member of the honor societies Alpha Zeta and Xi Sigma Pi. He is also a member of the S.A.F.

U. of Mich. to Hold Wood Tech. Short Course

Practical problems of the wood working industry will be covered in an intensive one-week course at the University of Michigan Wood Technology Laboratory August 10 through 15.

This course, first given in the summer of 1952, is designed for executives, plant personnel and quality control men, according to Fred E. Dickinson,

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chairman of the Department of Wood Technology, and course director. Because much of the program is concerned with learning procedures and techniques, the enrollment will be limited to 18 persons.

"Frequently mistakes in production of wood products are costly to manufacturers in time and material," Prof. Dickinson points out. "This course will deal with causes of rejects and how defects, and poor production and design practices can be eliminated or kept to a minimum. During the course participants are assisted in finding solutions to their particular problems."

Specific problems in drying, machining, gluing, finishing and fabrication of wood will be dealt with in lectures, demonstrations and practice. Extensive wood working facilities of the laboratory, a unit of the School of Natural Resources, will be used by the students and instruction will be by the regular faculty of the Wood Technology Department.

Applications for enrollment can be made by writing Institutes Department, University of Michigan Extension Service, Ann Arbor.

Government

Arkansas to Expand Fire Protection Program

Arkansas' new Forestry and Parks Commission has announced plans for expansion of the state's fire protection program, to include 2,000,000 acres of unprotected lands in central and northwest Arkansas. With this new program, more than 75 percent of the state's timberlands will be protected.

Final approval of these plans, according to State Forester Fred Lang, will depend upon how much revenue is received from a higher severance tax voted in a 1953 act of the Arkansas legislature. 97 percent of funds collected on this severance tax are to be used exclusively for carrying out functions of the forestry and parks commission. In addition, for every three dollars collected on severance tax, one dollar is to be appropriated to the commission from the general revenue fund.

Expansion of the fire protection program will call for fewer fire towers in the area, and an increase in air patrols, making them the most extensive ever used in the state. Practically all forest land in Arkansas will have protection except the bottom lands in the East Arkansas Delta country.

Oregon Enacts Modern Forest Code

A record of 26 forest laws were enacted by the 47th Oregon Legislature as it modernized the state forest code and strengthened a number of laws which had not been overhauled for 30 or more years. Governor Paul L. Patterson signed 22 of the measures and is expected to approve the remainder.

A record of only two negative votes were recorded in the passage of the 23 laws requested by the timber industry and the state forestry department. Of the three laws introduced by other in-

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terests, only the tansy ragwort eradication act received opposition.

In explaining the new legislation to federal, state and association forest officers, State Forester George Spaur stated the new laws made up the most comprehensive forest program enacted in recent years. He praised the members of the legislature and the forest industry for outstanding work in modernizing the forestry code.

Highlights of the legislation were the improvements in the forest protection acts; increased bond for reforesting lands, establishment of marketing areas for state timber sales and passage of the severance tax law which insured continuing forest research and establishment of a $750,000 forest fire fighting fund.

N.F. Expect Recreation Increase

More people are expected to visit the nation's 153 national forests this year than last, when the Forest Service registered 33,006,885 persons seeking recreation. Richard E. McArdle, chief of the Forest Service, estimates another 84,000,000 visits were made by those who came just as sightseers.

The use of the national forests for recreation has increased steadily since World War II. Last year's visits were a 10 percent increase over those of 1951 and an 85 percent increase over those of 1941, the highest pre-war year for recreational use.

Reports show that people visit the national forests to enjoy simple forms of outdoor recreation. Of last year's visits, approximately 8,027,000 were made by picnickers 5,931,000 by fishermen, 2,984,900 by hunters, 1,726,000 by winter sports enthusiasts, 1,641,402 by campers, 97,661 by swimmers and 815,639 by hikers and horseback riders. The rest did not register a reason for visiting a National Forest.

The forests receiving the most use were: the Wasatch in Utah with 1,378,000 visits; the Mt. Hood in Oregon, 1,297,000 visits; the Pike in Colorado, 1,266,000 visits; the Cherokee in Tennessee, 1,201,000 visits; the Angeles in California, 1,064,985 visits; and the Cache in Utah, 1,009,000 visits.

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Maine Encourages Growing of Timber

The State of Maine by an act approved March 13, 1953, declares it to be the public policy of the state to encourage sustained yield operation of all forest lands by the maintenance of adequate financial incentive through uniformity of tax assessment. Due weight is to be given to land productivity, location, and public facilities affecting operation in assessing forest lands. An owner may find relief in the courts upon proof that the assessment creates an incentive to abandon or strip the land or prevents his obtaining an adequate annual net return commensurate with the risk involved.

Carl W. Strauss Retires

Retirement of Carl W. Strauss from the State and Private Forestry staff of the U. S. Forest Service's regional office in Atlanta, Ga., was effective May 31 after more than 20 years of service with that agency and 18 years of prior employment in private industry.

Strauss joined the Forest Service in 1933 as superintendent of a CCC project at Crystal Springs, Ark.; spent a year on the Ouachita Forest Supervisors staff in Hot Springs; and transferred in 1936 to the Atlanta regional office, where, except for two and one-half years as assistant chief of the Timber Production War Project and two years on foreign detail, he has been engaged in cooperative forest management work with private owners.

In Germany, in 1949, he succeeded former Regional Forester Joseph Kircher as chief forester for the Bizone occupation area and later served as special assistant to High Commissioner John J. McCloy in charge of forestry, fish, and game activities.

Strauss' father was one of the nine founders of the Concatenated Order of Hoo Hoo—lumberman's fraternity.

Mr. and Mrs. Strauss plan to continue residence in Decatur, Ga., where he will engage in private forest management consultation.

Wisc. Detection System For Insect Damage

The Wisconsin Conservation Department has launched an active campaign against forest damaging insects and a corps of observers strategically placed through the forest areas will file regular reports through the summer as a basis for possible control measures.

C. L. Harrington, superintendent of forests and parks, has named 64 men of his division who will serve as official observers in addition to their other duties. These men will report to Norbert Underwood, department forest entomologist at the Griffith state nursery at Wisconsin Rapids. The field men were briefed as to their new duties at a special school that was held at Trees For Tomorrow camp at Eagle River. S. W. Welch, acting superintendent of cooperative forestry, will be in general charge of the program.

The new system is expected to keep the department up to date as to insect activities and the field reports will make it possible to plan control measures where it is felt advisable.

While the detection system will cover forest lands generally, the department will undertake actual insect suppression on state lands only. Other forest lands will have the benefit of the state's detection system and advice as to control measures that should be taken. The entomology section will be able to advise as to recommended poisons and their availability as well as where machinery can be obtained for their application.

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The American Institute of Biological Sciences, of which the Society of American Foresters is an Affiliate, publishes the AIBS BULLETIN five times a year. The August issue is a special program number for the annual AIBS-sponsored meeting of biological societies.

In the AIBS BULLETIN you will read, in the regular feature columns, news about the activities of biological societies, announcements of U. S. scientific meetings and international congresses, book reviews and reports on outstanding symposia. No research papers are published. The feature articles are general in nature, discussing the training of biologists, current employment trends in different fields of biology, career guidance, publication problems and editorial policies. A series of informative articles on the foundations and organizations offering research grants is in progress.

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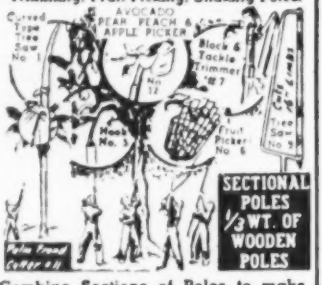
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George Kelley Becomes Asst. State Forester of Idaho

George E. Kelly, Stillwater, Oklahoma, will join the Forestry Division of the South Dakota Department of Game, Fish and Parks on June 1, according to Director Elmer Peterson of Pierre.

Kelly, a Bachelor of Science graduate in Forestry from Oklahoma A. & M. College, will fill the position of assistant state forester in charge of fire protection vacated by Gareth C. Moon, who recently resigned to accept a forestry position in Montana.

During the summer of 1949, Kelly attended the Oklahoma A. & M. College summer forestry camp in the Black Hills and the following year he was employed by the U. S. Forest Service as fire guard lookout in the Burgess District of the Bighorn National Forest in Wyoming.

A veteran of World War II, he served two years in the Infantry, later being recalled to active duty between 1950-1952 in the Corps of Engineers. It was during this duty that he did construction work at Fort Leonard Wood, Missouri, and in the Yukon Territory of Canada.

Bruce Named Supervisor Olympic N.F.

Mason B. Bruce, in the Division of Timber Management, Washington, D. C. since 1949, has been named supervisor of the Olympic National Forest in Washington. He replaces Carl B. Neal, who retired in February.

Mr. Bruce graduated from the New York State College of Forestry in 1933. For two years he was foreman of a Civilian Conservation Corps camp. Subsequently he served as ranger on the White Mountain National Forest in New Hampshire, on the Monongahela National Forest in West Virginia and on the Green Mountain National Forest in Vermont.

Between 1941 and 1945 he helped the Farm Security Administration in training of personnel and clients in good forestry practices, served as budget officer and business manager of the Eastern Region of the Forest Service and worked on the special Timber Production War Project to stimulate wood production for World War II. Before taking over his present position he was assistant supervisor of the White Mountain National Forest.

Dr. Little to Venezuela

Elbert L. Little, Jr., forest ecologist and dendrologist, U. S. Forest Service, is on a year's assignment to the Forestry School of the Universidad de los Andes, Merida, Venezuela. While there, he will teach botany and prepare an illustrated manual of the important trees of the country.

Forestry Employment

S.A.F. members are privileged to insert one 60-word advertisement in this column without charge. Forest industries desiring to employ foresters may insert advertisements at the rate of $4 per column inch. Copy must be received by the end of this month for an advertisement to appear in the issue after next.

Obviously, the Society cannot assume responsibility beyond making it possible for prospective employee and employer to enter into negotiations.

Positions Available

Pulp and paper mill under construction in Southeast now accepting applications for District Forester. Degree in forestry required. Previous logging experience and experience in paper industry desirable. At least eight (8) years experience in forestry required. Will plan and direct forest management, land acquisition, and pulpwood procurement activities within a district.

Box G, Journal of Forestry, Mills Building, Washington 6, D. C.

Positions Wanted

Graduate Forester, retired U.S.F.S., in Pacific Northwest, immediately available to western forest industries, consulting foresters, timberland owners, and state forestry departments on sustained yield, forest management, timber valuation, research, forest statistics and compilations, and forest and industry write-ups. Also as lecturer on western silviculture, forest management, forest administration, and dendrology in forestry schools.

Box H, Journal of Forestry, Mills Building, Washington 6, D. C.

Forester, 36, married, family, desires employment with a wood using industry. Fourteen years experience in timber management, harvesting, forest engineering, fire protection, and administration work with a state agency. WW2 veteran. Pilot's license. Information and references on request.

Box J, Journal of Forestry, Mills Building, Washington 6, D. C.

Sawmill manager and forester, 38, married, two children, eight years' experience cruising, timber buying, logging, and supervising production of southeastern sawmill producing fifteen million feet lumber annually. B.S. in Forestry. Mill closing for lack of available stumpage. Excellent references. Desires position with firm interested in expansion or development of new markets. Available for interview.

Box K, Journal of Forestry, Mills Building, Washington 6, D. C.

Forester, desires to relocate for opportunity for responsibility and advancement. Will consider any line of work anywhere in the U. S. Education: New York State College of Forestry. Experience: Five years with large northeastern pulpwood company in all phases of pulpwood operations; army; office management, drafting and marine experience. Married. Age, 30.

Box L, Journal of Forestry, Mills Building, Washington 6, D. C.

Society of American Foresters

Constitution and Bylaws

Mills Building
17th Street and Pennsylvania Avenue, N.W.
Washington 6, D. C.

Contents

Page

Articles of Incorporation 4

Constitution

Article I, Name 4

Article II, Objects of the Society 4

Article III, Membership Defined 4
- Section 1, Grades of Membership 4
- Section 2, Citizenship of Members 4
- Section 3, Student Members 4
- Section 4, Affiliate Members 4
- Section 5, Junior Members 4
- Section 6, Members 4
- Section 7, Fellows 4
- Section 8, Associate Members 4
- Section 9, Corresponding Members 4
- Section 10, Honorary Members 4
- Section 11, Voting Members 4

Article IV, Admission to Membership 4
- Section 1, Admission Procedure 4
- Section 2, Nomination, Section Endorsement, Advancement 5
- Section 3, Nominations to Fellow 5
- Section 4, Election of Fellow; Procedure 5
- Section 5, Charges of Unprofessional Conduct; Procedure 5
- Section 6, Termination and Reinstatement of Membership Defined in Bylaws 5

Article V, Dues 5
- Section 1, Admission Fee 5
- Section 2, Annual Dues 5
- Section 3, Payment of Dues 5
- Section 4, Remission of Dues 5

Article VI, Officers 5
- Section 1, Officers Named 5
- Section 2, President, Vice President, and Executive Secretary; Terms of Office 5
- Section 3, Duties of President 5
- Section 4, Duties of Vice President 5
- Section 5, Duties of Executive Secretary 5

Article VII, Council 5
- Section 1, Governing Body of Eleven 5
- Section 2, Terms of Office 5
- Section 3, Powers and Duties 5

Article VIII, Election of Council 6
- Section 1, Nominating Committee; Duties 6
- Section 2, Nomination by Petition 6
- Section 3, Method of Election 6

Article IX, Society Publications 6
- Journal of Forestry 6
- Society Affairs 6

Page

- Editor of Society Publications 6
- Associate Editors 6
- Managing Editor 6

Article X, Meetings 6
- Section 1, Annual Meeting; Place and Date 6
- Section 2, Resolutions Adopted at Meetings 6

Article XI, Sections 6
- Section 1, Authorized by Council; Meetings 6
- Section 2, Section Officers 6
- Section 3, Section Bylaws 6
- Section 4, Council May Terminate Sections 6

Article XII, Subject Divisions 6

Article XIII, Amendments 6

Bylaws

1. Society Headquarters 7
2. Transfer of Citizenship of Members 7
3. Schools of Forestry Classified 7
4. Requirements for Student Grade 7
5. Requirements for Affiliate Grade 7
6. Requirements for Junior Grade 7
7. Requirements for Member Grade 7
8. Requirements for Associate Grade 8
9. Requirements for Fellow 8
10. Nomination of Fellows 8
11. Section Endorsement of Candidates 8
12. Names of Applicants Published 8
13. Election to Lower Grade Permitted 8
14. Applications Rejected 8
15. Notification of Election; Period of Acceptance 8
16. Members to Receive Constitution and Bylaws 8
17. Applications on Printed Forms 8
18. Endorsement by Sponsors 8
19. Election of Members; Procedure 8
20. Official Membership Emblem 9
21. Termination of Membership; Causes 9
22. Notice of Membership Terminations 9
23. Unprofessional Conduct 9
24. Political Endorsement 9
25. Charges of Unprofessional Conduct 9
26. Evidence of Unprofessional Conduct 9
27. Charges Not Disclosed 9
28. Procedure for Handling Charges 9
29. Investigation of Charges 9
30. Powers and Duties of Council regarding Charges of Unprofessional Conduct 9
31. Council Decisions Final 10
32. Reinstatement of Former Members Dropped for Nonpayment of Dues 10
33. Reinstatement of Expelled Members 10
34. Eligibility for Reinstatement 10

Page

35. Dues; Members in Arrears May Not Vote or Receive Society Publications 10
36. Dues of Members Promoted in Grade 10
37. Extension of Time of Payment of Dues; Credit Allowed JOURNAL Subscribers 10
38. Remission or Postponement of Dues 10
39. Inactive Membership 10
40. Date of Election of Council 10
41. Nominating Committee for Council. Biographies of Candidates for President 10
42. Information on Ballot; Mailing 10
43. Voting Members to Receive Ballots 10
44. Tellers; Announcement of Elections 10
45. Time of Regular Elections; Filling Vacancies between Elections 10
46. President Pro Tempore 10
47. Method of Counting Ballots 10
48. Annual Reports by President, Executive Secretary, and Editor 11
49. Treasurer's Report for Fiscal Year 11
50. Reports by Chairmen of Committees 11
51. Travel Expenses of Officers 11
52. Referenda; Appeal by Petition 11
53. Meetings of Council 11
54. Council Action; Voting by Ballot 11
55. Absent Members Notified of Action between Meetings 11
56. Action by Quorum of Council; Action between Meetings 11
57. Executive Committee of Council 11
58. Committees; Appointment; Vacancies 11

Page

59. Expenditures by Committees 11
60. Fiscal Year Defined 11
61. Semiannual Audits 11
62. Bonds Required for Employees 11
63. Payment of Bills 11
64. Depositing and Investing Funds 11
65. Annual Budget 11
66. Permanent Fund 11
67. Special Funds 12
68. Committee on Meetings 12
69. Programs of Meetings 12
70. Presentation of Papers at Meetings 12
71. Student Subscribers 12
72. Members in Arrears for Dues Not Entitled to Publications 12
73. Regular Members of Sections 12
74. Associate Members of Sections 12
75. Associate Members of Sections Who Are Nonmembers of Society 12
76. Membership Lists to Section Secretaries 12
77. Sections to Submit Reports 12
78. Sections to Send Papers to JOURNAL 12
79. Section Chapters 12
80. Subject Divisions 12
81. Membership in Divisions 12
82. Regulations Governing Divisions 12
83. Freedom of Discussion in Divisions 12
84. Adoption of Bylaws; When Effective 12
85. Publication of Bylaws on Adoption 12
86. Notice of Amendments to Constitution and Bylaws 12

Articles of Incorporation

THIS is to certify that we, whose names are hereunto subscribed, citizens of the United States, a majority of whom are citizens of the District of Columbia, have associated ourselves together, pursuant to provisions of Chapter XVIII, sub Chapter III, of the Code of Law for the District of Columbia, approved March 3, 1901, and Acts of Congress amendatory, thereto, under the corporate name of SOCIETY OF AMERICAN FORESTERS.

The term for which the Society is organized is perpetual.

The particular business and objects of the Society are to encourage a broad and constructive practice of forestry; to stimulate research and achievement in the science of forestry; and to advance the profession of forestry through cooperative thought and a spirit of solidarity among foresters.

The number of managers of the Society shall for the first year of its existence be eleven.

Witness our hands this 3d day of October, A. D. 1928.

R. Y. STUART,
R. V. REYNOLDS,
OVID M. BUTLER,
JOHN H. FAHRENBACH,
BERNARD A. CHANDLER.

District of Columbia, *ss:*

I, Margaret S. Sears, a Notary Public in and for the District of Columbia, do hereby certify that R. Y. Stuart, R. V. Reynolds, Ovid M. Butler, John H. Fahrenbach, and Bernard A. Chandler, parties to the foregoing and annexed Certificate of Incorporation of Society of American Foresters, bearing date on the 3d day of October, A. D. 1928, personally appeared before me in the District aforesaid the said R. Y. Stuart, R. V. Reynolds, Ovid M. Butler, John H. Fahrenbach, and Bernard A. Chandler, being personally known to me to be the persons who made and signed the said certificate, and severally acknowledged the same to be their act and deed for the purposes therein set forth.

Witness my hand and official seal this 3d day of October, A. D. 1928.

MARGARET S. SEARS,
Notary Public, D. C.

Constitution

Article I
Name

The name of this Society shall be SOCIETY OF AMERICAN FORESTERS.

Article II
Objects

The objects of this Society shall be to represent, advance, and protect the interests and standards of the profession of forestry, to provide a medium for exchange of professional thought, and to promote the science, practice, and standards of forestry in America.

Article III
Membership Defined

Sec. 1. The membership of the Society shall consist of Junior Members, Members,[1] Fellows, Affiliate Members, Associate Members, Student Members, Corresponding Members, and Honorary Members.

Sec. 2. Members and Fellows shall be at the time of their election citizens of the United States, its possessions, or Canada. Student Members, Affiliate Members, Junior Members, and Associate Members shall be, at the time of their nomination for membership, citizens of the above-mentioned countries or shall have declared, in a legally accepted manner, their intention of becoming citizens.

Sec. 3. Student Members shall be junior or senior students, or graduate students not eligible for the Junior Member grade, regularly enrolled in approved curricula at accredited schools of forestry.

Sec. 4. Affiliate Members shall be persons (1) who have had education in forestry but who do not qualify for Junior Membership; or (2) who have had six years or more of practical experience in the production of timber crops or management or protection of the forest resources of forest land, and who have demonstrated their ability in practical forest administration as evidenced by employment in positions of responsibility.

Affiliate Members may be elected to Junior Membership on showing proof of eligibility.

Sec. 5. Junior Members shall be graduates of curricula approved by the Council in institutions accredited by the Council; or in lieu of such training they shall show proof that they have acquired a combination of technical experience and education sufficient for a professional career in forestry and equivalent to the training given in an approved curriculum in an institution accredited by the Council.

Sec. 6. Members[1] shall be elected from the Junior Members and shall have had at least three years' experience in forestry subsequent to the date they met the requirements for Junior Membership. Advancement to Member shall indicate that in the opinion of the Council the candidate is possessed of both the requisite theoretical and practical experience and has demonstrated his acceptance of such standards of professional conduct and character as to justify the Society in accepting him as competent to represent the profession honorably and capably in the performance of his duties. Members shall be engaged in forestry work at the time of election.

Sec. 7. Fellows shall be foresters of outstanding achievement as leaders in responsible directive or distinctive individual work of a fruitful character. They shall be elected from the Members and shall be engaged in forestry work at the time of their election.

Sec. 8. Associate Members shall be persons not foresters who are scientists or technicians in fields closely allied to forestry and who are rendering substantial service to forestry, or other persons whose work and interests have furthered forestry in a substantial manner, who have shown a comprehensive understanding of the objectives of forestry, and whose association with forestry is such as to be recognized by the profession generally.

Sec. 9. Corresponding Members shall be foresters who are not citizens or residents of the United States, its possessions, or Canada, but who have shown substantial interest in American forestry.

Sec. 10. Honorary Members shall be (1) persons not foresters who have rendered distinguished service to forestry either in America or abroad, or (2) professional foresters of outstanding achievement whose field of work lies outside of, and who are not citizens of, the United States, its possessions, or Canada.

Sec. 11. Junior Members, Members, and Fellows, if in good standing, shall be entitled to vote on any question before the Society as a whole. Other classes of members may attend any meeting of the Society and take part in the discussions, but shall have no vote.

Article IV
Admission to Membership

Sec. 1. All admissions to membership, reinstatements, and advancement from the grades of Student Member, Affiliate Member, or Junior Member to a higher grade shall be by vote of the Council.

The Council may delegate this authority to the Executive Secretary in the case of applicants for reinstatement, for Student Membership, for Junior Membership who are graduates of approved curricula in accredited schools, for Affiliate Membership who qualify wholly on the basis of education, and for automatic advancement from Junior Membership to the Member grade.

[1]Formerly Senior Members.

For all other applicants, the Council may delegate this authority to a Council Committee of three appointed by the President. The unanimous vote of this Council committee shall be required to elect an applicant; a split vote by the committee shall require consideration by the whole Council. When the whole Council acts on a doubtful case or one rejected by the Council committee, eight affirmative votes shall be necessary to elect.

At least one month prior to action by the Council, the names of all applicants with a statement of their qualifications, shall be referred to the entire voting membership for comment or protest.

Sec. 2. Applications for the following grades of membership may be endorsed by three voting members: Student Membership; Affiliate Membership when applicants qualify on the basis of education; and Junior Membership when applicants are graduates of approved curricula in accredited schools.

Applications for all other grades of membership shall be endorsed by the Sections except for applicants residing outside the territory of a Section in which case they may be endorsed by three Members or Fellows.

Immediately upon a Junior Member's fulfillment of the requirements for Member, he may make application or the Section in which he is domiciled may nominate him for the Member grade. A Junior Member who, at the expiration of six years, has not applied or who has not been nominated by a Section for the Member grade, and who is actively engaged in forestry work, shall automatically become a Member unless his advancement is protested on the basis of lack of competence or for other reasons, and the protest is sustained by the Council.

Annually, the Executive Secretary shall notify each Section of every Junior Member in its territory who is completing his sixth year of membership, and shall request a report on him and an endorsement if he is eligible for Member. Instances of questionable eligibility shall be referred to the Council, which body shall interpret the "actively engaged in forestry work" in doubtful cases. Thus those who have been Junior Members for six years, who are actively engaged in forestry work, who have had three years' experience in forestry, and whose advancement is not protested on grounds of competence or for other reasons, shall be certified as full Members by the Council.

Sec. 3. Nominations to the grade of Fellow shall be made by the written endorsement of twenty-five Members and Fellows.

Sec. 4. Election to the grade of Fellow shall be concurrent with the election of officers by letter ballot of the members of the Council and Fellows. The ballots may be counted by any system of preferential voting which the Council may prescribe provided each candidate elected thereunder shall be required to receive an affirmative vote of not less than one half the total votes cast.

Sec. 5. Charges of unprofessional conduct against a member must be submitted to the Council in writing by five or more voting members. The Council shall consider proceedings looking toward the expulsion of any member for unprofessional conduct. It may delegate this function or any part thereof to a committee or committees on disciplinary action. The accused shall be informed of the charges against him, and be afforded an opportunity to be heard.

The affirmative vote of eight members of the Council shall be necessary to expel, reprimand, censure, or otherwise discipline a member.

Sec. 6. Conditions under which membership may be terminated or former members reinstated shall be defined in the bylaws.

Article V
Dues

Sec. 1. An admission fee of $5 shall be assessed upon original election to membership, but shall not be assessed for advancement to higher grades or for election to the grades of Student Member, Corresponding Member, and Honorary Member.

Sec. 2. Effective January 1, 1949 annual membership dues shall be as follows:

For Fellows, $15.

For Members, $12 for their first six years in this grade; $15 thereafter.

For Junior Members, $6 for their first three years in this grade; $9 for their second three years in this grade; $12 thereafter.

For Associate and Affiliate Members, $6.

For Student Members, $3.

Honorary and Corresponding Members shall not be charged dues.

Sec. 3. Annual dues shall be payable from the first day of January. Members in arrears on July 1 shall be declared in bad standing and shall forfeit from that date, until their dues are paid, the right to vote, to be elected to office, or to receive the official publications of the Society.

Entrance fees and dues of newly elected members shall be payable upon their acceptance of election to membership. Members elected after April 1, July 1, and October 1, respectively, shall be charged three-fourths, one half, or one-fourth of the annual dues for the year as indicated by the date of election except that members admitted to the Society after December 1 shall not be charged dues for the remainder of the calendar year.

Members promoted to a higher grade shall be charged with the dues for said grade, beginning with the quarter year in which they were elected.

The Council may remit the dues of any member for any special reason as provided in the bylaws.

No member of any grade shall be entitled to any return of fees or dues upon severance of his connection with the Society.

Sec. 4. Members and Fellows who retire from active forestry practice, after having been members of the Society for 20 years or more, may upon application to the Council continue as voting members but have their dues remitted except for an annual charge of $5 should they desire to receive the JOURNAL OF FORESTRY and other Society publications.

Article VI
Officers

Sec. 1. The officers of the Society shall be a President, a Vice President, and an Executive Secretary.

Sec. 2. The President and Vice President shall be elected from the Members and Fellows as provided in Article VIII, and shall serve for two years from January 1, or until their successors are elected. The Executive Secretary shall be appointed by the Council which is empowered to enter into contractural relations with him during the period not exceeding two years for which he is appointed.

Sec. 3. The President shall preside at meetings of the Society, shall be chairman of the Council, shall appoint such committees as may be approved by the Council, and shall perform all other duties incident to his office.

Sec. 4. In the absence of the President, or in his inability to act, his duties shall be performed by the Vice President. In the event neither can serve, the Council shall appoint a president pro tempore.

Sec. 5. The Executive Secretary shall be the executive officer of the Society under the general direction of the Council. He shall perform the duties of treasurer, be custodian of the funds and securities of the Society, and shall furnish bond in suitable amount as determined by the Council.

Article VII
Council

Sec. 1. The Society shall be governed by a Council comprised of the President, Vice President, and nine elected members.

Sec. 2. The members of the Council shall be elected from the Members and Fellows as provided in Article VIII. Members elected to the Council shall serve two years. The President, Vice President, and members of the Council may be nominated and elected for additional terms of two years.

Sec. 3. The Council shall control the funds of the Society; shall have the power to fill any vacancies occurring in its number; and shall perform such other duties as prescribed in the several articles and sections of the Constitution.

The Council shall receive and act upon charges of unprofessional conduct preferred against any member of the Society, as provided in Article IV, Section 5.

The Council shall have power, by vote of at least eight of its members, to draft and establish bylaws but no such bylaws

shall abrogate or be inconsistent with any part of this Constitution.

Any action of the Council may be brought before the Society at large on written petition of not less than 250 voting members representing at least three different Sections with at least 25 members from each. This provision shall not apply to jurisdiction over cases of disciplinary action nor to administrative matters, including the appointment or dismissal of the Executive Secretary and Editor, in which cases the decision of the Council shall be final.

Six members of the Council shall constitute a quorum.

Article VIII
Election of Council

Sec. 1. A nominating committee shall be appointed by the President, with the approval of the Council, not later than April 1 of the year in which an election is to be held. It shall be the duty of this committee (1) to provide that there shall be at least two candidates presented for the office of President and at least nine candidates presented for members of the Council; (2) to receive separate nominating petitions from the membership at large for the office of President and for each member of the Council, and to supplement such petitions with other nominations when necessary to comply with provision (1) above. All candidates for President shall be considered as nominated also for Vice President; (3) to cause to be distributed to the entire membership, at least ten weeks before the date of election, in the official organ of the Society or otherwise, its own nominations and any nominations by petition that may then be available, provided that no person shall be listed as a candidate at any time until the committee has received his written acquiescence; (4) to set the date of election, and announce it to the Society at least ten weeks in advance; and (5) to instruct the Executive Secretary to submit during the sixth week prior to the date of election, to the voting membership for letter ballot, all nominations made by the nominating committee or by petition.

Sec. 2. Nominations by petition shall be subject to the following conditions: (1) each petition shall name but one candidate; (2) all candidates must be eligible to hold elective office; (3) a petition shall bear the signatures of at least ten voting members of the Society who at the time of signing such petition are eligible to vote in the forthcoming election. A voting member may not sign more than one nominating petition for President or more than one nominating petition for member of the Council; (4) petitions must be in the hands of the nominating committee by the end of the seventh calendar week prior to the date of election.

Sec. 3. All elections shall be by the Hare system of proportional representation. Candidates for the office of President shall be voted for by all members of the Society entitled to vote. The candidate receiving the highest vote shall be declared elected President and the candidate receiving the second highest vote shall be declared elected Vice President. The quotas of votes necessary to elect each of the remaining nine members of the Council shall be determined by the usual Hare rules applicable to an election at large.

Article IX
Society Publications

The Society shall publish (1) a monthly technical forestry periodical known as the JOURNAL OF FORESTRY, (2) a monthly official organ with respect to internal Society matters, and (3) such other publications as the Council may authorize.

An editor of Society publications may be appointed by the Council, at such compensation as the Council may direct, to serve as a staff member of the executive office. He shall perform such editorial and related duties as the Council and the Executive Secretary may assign. The Editor shall be assisted by Associate Editors, appointed by the President, of such numbers and fields of duties as may be authorized by the Council.

The official organ shall be known as Society Affairs. The Council may prescribe that it be printed as a section of the JOURNAL. Publication in Society Affairs shall constitute reference, distribution, and notice to the membership as provided in Articles IV, VIII, and X of the Constitution.

The Executive Secretary may be appointed by the Council to serve as Managing Editor of the JOURNAL for the performance of such duties as the Council may assign him. He shall be responsible to the Council for the business affairs and administrative policies of all Society publications.

Article X
Meetings

Sec. 1. The Society shall hold an annual meeting and such other meetings as the Council may direct. The place and date of the annual meeting shall be selected and adequate notice given to the Society at least three months in advance of the date fixed for the meeting.

Sec. 2. Resolutions adopted at the annual meeting by the vote of less than a majority of the entire voting membership of the Society shall represent the majority opinion of those voting members present and shall not be binding on the Society as a whole.

Article XI
Sections

Sec. 1. Sections of the Society may be authorized by the Council upon the written petition of thirty or more voting members, at least fifteen of whom shall be Members or Fellows, resident within a territory small enough to justify the belief that a strong local organization may be effected. Sections must hold at least one meeting each year to retain their authorization.

Sec. 2. The officers of each Section shall include a Chairman, a Secretary, and such others as may be found necessary. Section officers shall be voting members of the Society.

Sec. 3. Any Section may, subject to the approval of the Council, adopt for its own government such bylaws as it may find expedient, including the qualifications for associate members of the Section, provided that no part thereof shall conflict with the Constitution of the Society.

Sec. 4. The Council shall have the right at any time to rescind the authorization of any Section and to terminate its existence.

Article XII
Subject Divisions

Subject Divisions of the Society may be authorized by the Council upon the written petition of twenty or more voting members of the Society engaged in the special field of forestry to which the Division pertains, at least five of whom shall be Members or Fellows of the Society. Subject Divisions shall be organized only as the Council is convinced of their need, and they shall be regulated through bylaws established by the Council.

Article XIII
Amendments

The Constitution may be amended by a two thirds vote of the members voting, provided the proposed amendments have been submitted to all voting members at least four weeks in advance of the date set by the Council for counting the ballots. Amendments shall, unless they themselves provide otherwise, be effective immediately upon their adoption.

Bylaws

Headquarters

1. The official headquarters of the Society shall be in the District of Columbia.

Citizenship

2. Transfer of citizenship outside of the United States, its possessions, or Canada subsequent to election shall not invalidate membership or the right to vote and to receive the publications of the Society, but it shall prevent transfer to a higher grade of voting membership, and such members shall also forfeit the right to hold office as a member of the Council.

Schools of Forestry Classified

3. In pursuance of Article III, Section 5 of the Constitution, the Council shall designate as accredited institutions those colleges and universities offering professional forestry instruction that meet the standards of adequacy established by the Council as to curricula, faculty personnel, and related facilities.

For the purpose of determining the eligibility of graduates of accredited institutions for Junior Membership, the Council shall additionally designate as approved those curricula that contain all the minimum professional courses specified in Bylaw 5.

Membership Requirements

Student Member Grade

4. Requirements for Student Grade: Junior, senior, and graduate students regularly enrolled in approved curricula at accredited schools of forestry are eligible for Student Membership. Students eligible for Junior Membership shall not be eligible for Student Membership.

Affiliate Member Grade

5. Requirements for Affiliate grade: Training in forestry, or in related fields in wildland management or forest utilization, but of insufficient quantity to meet the requirements of the Junior Member grade, is the basic requirement.

Class A. Graduates of institutions which offer forestry curricula, but which have not been accredited by the Council of the Society, shall be eligible provided their instruction has included not less than one 3 quarter-credit course in each of the following subjects: silviculture, forest management, forest protection, forest economics, and wood utilization.

Class B. Persons who have had at least six years of practical training, or a combination of practical and theoretical training equalling at least six years, shall be eligible. Each academic term of appropriate theoretical training at ranger, vocational, or professional forestry schools may be substituted for one year of practical training up to a maximum of two years. Qualifying forestry experience, which may be considered as meeting the practical training requirements, shall be obtained while the applicant is regularly engaged in growing forests, with attendant duties such as management or protection of forest areas, supervision of silvicultural requirements in logging, erosion control, or similar forestry activities; regularly engaged in related wildland activities such as range, wildlife, or recreation management; or regularly engaged in those phases of utilization having a relation to the growing of forest crops.

Class C. Graduates of institutions which have been accredited by the Council of the Society, who have majored in wood utilization, wood technology, wildlife management, or range management where these curricula do not include all the five professional courses (silviculture, forest management, forest protection, forest economics, and wood utilization or technology) shall be eligible.

Junior Member Grade

6. Requirements for Junior grade: Theoretical training in the fundamental principles of professional forestry is the basic requirement.

Junior Membership is the temporary, probational, entrance grade for professionally trained foresters.

Class A. Graduates of approved curricula in institutions accredited by the Council of the Society shall be eligible on the endorsement of three voting members.

For a curriculum to be approved it must include not less than one 3 quarter-credit course in each of the following subjects: silviculture, forest management, forest protection, forest economics, and wood utilization.

Class B. Affiliate Members, who have had two additional years of qualifying forestry experience since being elected to the Affiliate grade, shall be eligible for election to the Junior Member grade on the endorsement of the Sections in which they are domiciled, provided that satisfactory evidence is submitted that during their total experience they have gained a knowledge of all the professional courses included as a minimum in an approved curriculum in an accredited forestry school.

Member Grade

7. Requirements for Member Grade: Competence as a professional forester is the basic requirement.

a. Previous election to Junior grade.

b. Three years' experience in forestry, the purpose of which is to demonstrate that the applicant, in addition to his Junior requirements, has demonstrated his competence as a practicing forester to accept responsibility and perform duties of a professional character such as to justify the Society in accepting him as competent to represent the profession capably in the performance of his duties, and his adherence to such standards of professional conduct and character as to justify the Society in accepting him as competent to represent the profession honorably in the performance of his duties and in his relations with others.

c. Engaged in forestry work at the time of election. For prospective Members, who have full Junior qualifications, forestry work shall include all activities having to do with the management of forest land and the utilization of any of its resources. Forest land is any land on which trees are the principal crop or cover, or on which it is proposed to produce trees as the principal crop or cover, or land which forms an integral part of such forest land in management of said land, or land on which erosion control is practiced or planned, with aid of forest trees, or grazing land[1] which forms part of an administrative unit whose principal function is forestry, or land on which game management is practiced in connection with forestry, or any similar lands on which the forest is an integral and dominant feature. Forestry work shall therefore include, for Members, the following activities as above qualified: arboriculture and municipal forestry; park management; recreational management; grazing; wildlife; protection including erosion control; fire, insects and diseases; streamflow regulation including chaparral areas; silviculture; forest management and administration; forest utilization including logging, manufacturing, and sale of products; research in any or all of the above fields; teaching in any of the above fields; office, supervisory, or administrative duties in any of the above fields; whenever the accomplishment of these aims requires the application of professional forestry knowledge.

d. Individuals who have not qualified for Junior Membership cannot obtain the Member grade. The two requirements for election to the grade of Member of persons engaged primarily with resources other than trees or forestry are Junior Membership, indicating the possession of basic theoretical training in professional forestry, and activities related to forest land as defined. It follows that persons who are not Junior Members, or Junior Members whose activities have nothing to do with forest land, such as the administration of grazing on the nonforested public domain, wildlife management concerned only with prairie or waterfowl management unrelated to forests, or erosion engineers in treeless regions, do not qualify as Members.

Except as provided for under qualifications for Junior grade, additional study shall count only as the equivalent of the same period of experience, it being the purpose of this grade to require prepara-

[1]Formerly Senior Member grade.

tion in both theoretical and practical forestry. A minimum of two years of practical experience in addition to study shall be required for Member.

Associate Member Grade

8. Requirements for Associate Membership. There shall be two alternate qualifications for Associate Membership.

Class A. Persons who have not the professional forestry qualifications of Junior Members, but who otherwise qualify as scientists for a grade equivalent to Member, which is the conception of this grade. Scientists working in the field of forest products but whose training has not included a large enough field of forestry to qualify as Junior Members belong in this grade. This grade includes graduates of specialized curricula in wood utilization, pulp and paper manufacturing, logging engineering, or such specialized fields as range management or wildlife, or other specialties, if said persons are equipped as scientists with a professional education equivalent to that of Junior Members but in their own field, and whose activities are conducted in close relation with forestry or foresters, in case such specialized curricula are not accepted by the Council as giving full professional training in forestry, belong in this grade. The same is true of economists in such subjects as forest taxation, land utilization, and the lumber industry.

Class B. Persons who are not possessed of a scientific education and are not pursuing scientific activities, but who through their public activities in connection with forest economics and forest policy or their individual efforts along any line of forestry, public or private, such as outstanding success in private forest management, have shown that they understand the fundamental objectives and principles of forest economics, management, and technical practice, and whose services in these respects are recognized generally by members of the profession who would normally be expected to know of their activities, are eligible for this grade. The words "recognized by the profession generally" will be taken to mean that if the members of a Section generally recognize that these services have a value to the profession generally, that is, extending outside the boundaries of the Section, the individual is eligible, if approved by the Council. Persons of lesser merit should be associated not with the Society but only as associate members of a Section, when its bylaws provide for such a grade.

Fellow Grade

9. Requirements for Fellow: The prescribed eligibility requirements for Fellow indicate that a candidate's record and reputation should be well known among Members and Fellows, who alone are entitled to vote for these candidates. Such candidates should be selected from among the most widely known Members, whose professional service has been exceptionally outstanding.

10. A petition nominating a Member for advancement to Fellow must be accompanied by a biographical sketch of the candidate, including a brief account of his professional career and accomplishments. A sketch of biographical facts not exceeding 200 words shall be printed for each nominee for the grade of Fellow.

Membership Nomination and Election Procedure

11. Endorsement by a Section, as provided in Article IV, Sec. 2, may be accomplished either by vote of the Section or, when the Section bylaws so provide, by a committee of the Section empowered to act.

12. Publication of the names of applicants for membership as required by Article IV, Sec. 1, shall take place in SOCIETY AFFAIRS. For the purpose of such publication, "qualifications" is interpreted to mean a statement of the applicant's forestry education, with degrees and dates, his present position, and the date of his election if he is already a member in another grade. Upon request, any member entitled to vote shall be provided with more detailed information regarding the qualifications of any particular applicant.

13. The Council may elect an applicant to a lower grade of membership than that for which he was nominated, but not to a higher grade, without further publication.

14. An application rejected on the second ballot may not be resubmitted for the same grade of membership until after twelve months following such rejection. If the endorsers so desire, it may be resubmitted at any time for a lower grade.

15. The Executive Secretary shall promptly notify each successful applicant of his election and membership shall date from date of election, unless the Executive Secretary, as empowered by the Council, shall extend the period of acceptance as provided by Bylaw 37. If not accepted within 90 days after notification by the Executive Secretary, or within 90 days after the periods as extended by the Executive Secretary, election shall be void.

16. The Executive Secretary shall supply each newly elected member with a copy of the Constitution and Bylaws of the Society.

17. All applications, except of candidates for Fellow and Honorary Member, will be prepared on the printed forms provided by the Executive Secretary and approved by the Council. These forms will carry instructions as to how to supply the factual evidence required of a candidate's eligibility, in such matters as name, date and place of birth, education, professional experience, and other data.

18. Every application, except for the specific exemptions listed below, must be supported by three or more endorsements from voting members, who from their personal knowledge of the applicant and his work, can provide evidence of his eligibility. Endorsements are not required of the following classes of applicants.

1. Applicants for Student Membership.
2. Applicants for Junior Membership who are graduates of approved curricula in accredited institutions.
3. Applicants for Affiliate Membership who qualify wholly on the basis of education.
4. Junior Members eligible for automatic advancement to the Member grade.

19. All applications for membership in the Society will be sent by the Section or by the group of individual members who are sponsoring the candidate to the Executive Secretary at the Society's headquarters office in Washington, D. C. He shall check each application to see that the Constitution and Bylaws have been complied with as to endorsement and presentation of the factual evidence of eligibility. He shall acknowledge receipt of each application to the candidate, and shall inform him as to the procedure and approximate period required for election, the provisions of the bylaws as to dues, and any other facts deemed desirable.

The applicant's name will then be listed for publication, under the heading "Announcement of Applicants," in the next available issue of SOCIETY AFFAIRS. Such publication shall serve as acknowledgment to the Sections or groups of individuals sponsoring the applications. Copies of the application papers in each case will, on the appearance of such lists, be sent by the Executive Secretary to the Council for ballot with the exception, that in the case of applicants for Junior membership who are graduates of a school of forestry approved by the Council, the Council may delegate its authority to the Executive Secretary to declare such applicants elected after the publication of their names, unless for some reason they are unqualified or their candidacy should be referred to the entire Council. With the application papers will be included any comments on the applicant and his eligibility. Elections shall not take effect until after the expiration of the period of 30 days following the publication of said list. If within this period one or more protests against the election of any applicant are received, the Executive Secretary shall conduct such investigations as are necessary to obtain full and adequate information on which to make just and final decision as to the eligibility of the applicant.

In case of a favorable vote, and in the absence of any protests, the applicant and his sponsors will be immediately notified of his election to membership by the Executive Secretary.

When an applicant fails of election the results will be reported back to the Section or group of members sponsoring the application. The reasons for this action will be included in order that the sponsors may be guided accordingly, if they desire to submit the case for a second ballot.

Official Membership Emblem

20. The official emblem is a shield with "Society of American Foresters 1900" in gold letters on a green background surrounded by a gold border. All members are entitled to wear this emblem.

Termination of Membership

21. Membership may be terminated by (1) voluntary resignation; (2) failure to pay dues; (3) expulsion for unprofessional conduct as provided in Article IV, Sec. 5.

A voluntary resignation shall be accepted by the Executive Secretary provided charges of unprofessional conduct are not pending against the member and provided the member is in good standing at the time and his dues are paid for the current year, except that the current year's dues shall not be required from members resigning prior to January 31, in any year.

In the case of a member whose dues remain unpaid on November 1, the Executive Secretary shall notify both the member himself and the Secretary of his Section, that the dues must be paid or a request for remission or postponement made within thirty days. For newly elected members the provisions of Bylaw 37 shall apply. If the dues are not paid, nor a request for remission or postponement made by the member or his Section within thirty days after such notice from the Executive Secretary, membership shall automatically terminate, unless charges of unprofessional conduct are pending in which case membership shall not terminate until the charges have been disposed of. A member thus dropped for nonpayment of dues shall not be eligible for reinstatement to any grade of membership until he shall have paid the dues in arrears at the time he was dropped.

In case either the member or his Section requests remission or postponement of dues, the Council shall act upon such request promptly. The Council may remit or postpone the payment of dues of any member upon its own initiative.

22. Notice of all terminations of membership shall be provided the Sections. The names of deceased members shall be published in SOCIETY AFFAIRS.

Unprofessional Conduct

23. It will be regarded by the Society unprofessional conduct for a member, when he has reason to know that an appointment to a position not yet vacant will be made possible by the dismissal for political reasons of the present incumbent:

a. To seek such appointment through political channels;

b. To accept such appointment.

24. The seeking or accepting of political endorsement for appointment to a vacant position does not necessarily constitute unprofessional conduct, but should be avoided as far as possible because it tends to identify the applicant with a political instead of a merit system of employment and to render him subject to dismissal when party government changes.

25. It shall not be required that all five members signing charges of unprofessional conduct, as provided in Article IV, Sec. 5, be prepared to submit evidence in support of such charges. The purpose of the provision is to prevent hasty action by requiring that the matter must be sufficiently serious, in the judgment of five members, to warrant further investigation by the Council.

26. Members preferring charges of unprofessional conduct will be expected to cooperate with the Council by submitting such evidence as they may have, or by directing the Council to other sources of information.

27. The names of persons signing charges in accordance with Article IV, Sec. 5, shall not be made known to the accused, nor shall he be informed that charges have been made unless and until the Council, after due investigation, shall have become convinced that such charges appear to be sufficiently well founded to be brought to his attention.

28. If, after investigation, any or all of the charges made under the provisions of Article IV, Sec. 5, appear to a majority of the Council to be well founded, a statement of such charges shall be submitted to the accused, who shall then have a period of sixty days within which to prepare and submit a written defense. After the expiration of such sixty days the case shall be submitted for the decision of the Council, by letter ballot.

The membership of a member charged with unprofessional conduct in accordance with Article IV, Sec. 5 shall not be terminated either by voluntary resignation or by failure to pay dues until the Council has disposed of the charges. Pending such disposition, a member charged with unprofessional conduct who ceases to pay dues shall not receive Society publications and shall not have the privilege of voting.

29. The Council may, under the authority of Article IV, Sec. 5, appoint a temporary committee to investigate charges submitted to it in proper form against a member, when, under Bylaw 30 the Council has voted to proceed with such investigation. Such committee shall be composed of from five to seven members other than the Council, a majority of whom shall be from the Section in which the defendant resides. The President shall designate the chairman. Within the period of sixty days allowed the defendant, under Bylaw 30, said defendant shall submit to the chairman of this committee the evidence for his defense.

The committee shall itself investigate all evidence for or against the defendant, and shall inform him of the general nature of the evidence in its possession in support of the charges. On the conclusion of this investigation the committee shall afford the defendant, if he so requests, an opportunity to present witnesses or further evidence in his own behalf.

On the conclusion of the hearing the committee shall transmit its report and evidence to the Council, together with its recommendations for action. Final decision shall rest with the Council under Article IV, Sec. 5.

30. a. When the Council declines to investigate the charges, the accused is not informed of their existence and any public reference to them is, therefore, wholly inappropriate. In occasional instances when the accused learns of the existence of such charges and wishes to have his name publicly cleared, the President shall, if specifically requested by the accused, publish a brief statement in SOCIETY AFFAIRS to the effect that charges of unprofessional conduct have been preferred against Mr. Blank, but that the Council has not regarded them as sufficiently well founded to deserve investigation.

b. When the charges are investigated by the Council and dismissed, the accused and the accusers shall be so informed, but there shall be no publicity unless specifically requested by the accused. In that case, the President shall publish a brief statement in SOCIETY AFFAIRS to the effect that charges of unprofessional conduct have been preferred against Mr. Blank, and after investigation by the Council have been dismissed as without justification.

c. When the charges are investigated by the Council and sustained, the President shall publish in SOCIETY AFFAIRS a brief statement that Mr. Blank has been found guilty of unprofessional conduct and has been disciplined as indicated.

d. When further information is requested by a Section of the Society, by an individual member, or by a nonmember with a legitimate interest in the matter, the inquirer shall be supplied by the President with a statement of the specific respects in which the Council has found the accused guilty of unprofessional conduct. The original charges may or may not be included as circumstances warrant. Supplemental statements of this sort may be published in SOCIETY AFFAIRS if there appears to be a widespread demand for the information contained therein, but only with the approval of the Council.

e. When there is a general and legitimate demand for still further information, the President shall prepare a statement giving in full the reasons for the Council's decision, and including as complete an analysis of the charges and of the evidence relating thereto as may in his judgment be wise. This statement shall be submitted for the approval of the Council, which shall also decide whether or not it shall be published and if so in what form. The publication of any statement dealing with cases of disciplinary action in Society publications should be accompanied by a statement to

the effect that it is published solely for the information of the members.

31. Action by the Council under the provisions of Art. IV, Sec. 5, shall be final.

Reinstatement

32. Except as provided below, a former member dropped for nonpayment of dues shall not be eligible for reinstatement to any grade of membership until he shall have paid the dues in arrears at the time he was dropped. Endorsement of his application is not required nor is the payment of admission fee. Publication of his name is required.

Former members who have served honorably in the armed forces and who were dropped for nonpayment of dues during such period of service may be reinstated without payment of arrears.

33. Members expelled or forced to resign because of unprofessional conduct may be reinstated only by unanimous vote of the Council.

34. Former members of a grade higher than Affiliate Member shall be eligible to reinstatement to the grade which they previously held, provided, in case of Member or Fellows, that they are engaged in forestry work at the time of reinstatement.

Dues

35. Members of all grades except Corresponding and Honorary Members shall be billed for dues by the Executive Secretary as soon as practicable after January 1 of each year. Those whose dues remain unpaid shall be billed again on or about April 1, and those whose dues are still unpaid shall be notified as soon as possible after July 1 that they are in bad standing and ineligible to vote, receive the Society's publications, or be a candidate for office until their dues are paid.

36. Members promoted to a higher grade shall pay the amount of excess dues over the former rate, dating from the date of promotion, except that Student Members advanced to the grade of Junior Member during the calendar year in which they are graduated shall not be charged Junior Member dues for that year.

37. Under Article V, Sec. 3, the dues of new members shall be paid for the quarter during which they were elected, except that the Council may empower the Executive Secretary on request of the member to remit the dues covering a period up to six months from date of election, provided that for financial or other reasons he has been unable to accept election at time of notification. If at the expiration of said period the member renews his request for extension and the circumstances warrant such action, the Executive Secretary may remit the dues for a second period, not exceeding six months, or a total period not exceeding one year from date of election. New members shall receive the JOURNAL OF FORESTRY for the full quarter in which election is accepted and for which dues are paid. A new member who is already a subscriber to the JOURNAL shall be credited with the unexpired portion of his subscription at one twelfth of the annual subscription rate, for each issue.

38. As provided in Article V, the Council may remit or postpone the payment of dues of any member on account of sickness, absence from the United States or its possessions or Canada, unemployment or financial stringency, temporary or permanent, or for other reasons which the Council may deem sufficient. In especially meritorious and exceptional cases when the member has rendered long and faithful service to the Society and when his financial status makes such action appropriate, the Council may remit dues permanently, providing at least eight members of the Council favor such action. Retirement for age from active forestry practice on a pension or a retirement annuity will not alone be deemed sufficient reason to grant a member permanent remission of dues or life membership.

39. The Executive Secretary is authorized, if and when the Section concerned so recommends, to place a member on the inactive list. The Section's recommendation must be based on satisfactory evidence that the member's financial circumstances warrant such consideration. Temporary service of a member in his nation's armed forces will warrant granting him, at his request, inactive status for the duration of such service. During such inactive period a member will not be required to pay Society or Section dues; he will not be allowed to vote or otherwise take formal part in Society affairs; nor will he receive the Society's publications. An inactive member may restore himself to active membership by notifying the Executive Secretary (preferably through his Section secretary), that he is ready to resume payment of his dues. He will not be required to pay up back dues for the period during which he was inactive.

Council: Nomination and Election

40. The date of election, to be selected by the nominating committee under provisions of Article VIII, Sec. 1, shall be not before December 1, or later than December 15.

41. The nominating committee appointed under the provisions of Article VIII, Sec. 1, shall be appointed by April first preceding the date of election and shall consist of three or more Members or Fellows. The names of the committee and the date of election shall be published in the May issue of SOCIETY AFFAIRS together with a notice calling the attention of the membership to the Constitutional provisions regarding nominations by petition, and listing the names of officers and Council members whose terms of office expire at the end of the current year.

A brief and strictly factual professional biography of each candidate for president shall be published in that issue of SOCIETY AFFAIRS preceding an election.

42. The ballots sent to the members shall (1) state the number of offices to be filled; (2) list the names of the candidates in alphabetical order; (3) give the address and Section membership of each candidate; (4) show the closing date for receiving the ballots; (5) quote the provisions of Article V, Sec. 3, regarding arrears in dues; (6) be accompanied by a return envelope addressed to the Executive Secretary and a smaller blank envelope for the return of the ballot. On the outer addressed return envelope shall be the directions, "After closing the envelope endorse your full signature on the back." All necessary checks to determine whether a member is in full standing shall be made without opening either envelope. The outer envelopes shall first be opened and laid aside, and when all valid ballots have been thus freed from identification, they shall then be opened and counted.

43. Ballots shall be sent to all Junior Members, Members, and Fellows, regardless of whether they are in bad standing. Ballots will be counted if the voters' dues are paid by the date of the election.

44. The ballots shall be counted by tellers appointed by the President. The results of the election shall be announced promptly to the winning candidates, to each of the several Sections, and to the Society at large by publication in the January issue of SOCIETY AFFAIRS. The results shall also be announced at the annual meeting if it falls on a fitting date.

45. Regular elections shall be held in the odd numbered years. Vacancies occurring between regular elections shall be filled by the Council, as provided in Article VII, Sec. 3. Such appointments by the Council shall be only for the period until the next regular election.

46. The President pro tempore appointed under the provisions of Article VI, Sec. 4, shall serve until the next regular election, or until the President or Vice President is able to resume his duties. Such President pro tempore may be appointed either from the membership of the Council or from outside. If he is appointed from the Council membership, another member may be appointed to the Council to fill the vacancy.

47. Ballots under the Hare system of proportional representation, prescribed by Article VIII, Sec. 3, shall be counted by the method described in Leaflet No. 9 issued by the Proportional Representation League in March, 1921, or in Leaflet No. 9, revised edition, issued in October, 1925. "Majority quota" prescribed for the selection of President is understood to mean a majority of all the valid votes

cast, arrived at through a series of transfers similar to those by which the minimum quotas are reached.

Officers: Duties, Etc.

48. The President, Executive Secretary, and Editor shall report to the Society at the annual meeting regarding their activities during the preceding year, and their reports shall be published in SOCIETY AFFAIRS as soon as may be practicable thereafter.

49. The Treasurer's report shall cover the fiscal year ending November 30, instead of the calendar year.

50. Chairmen of standing and other committees shall report to the annual meeting at the option of the President, and their reports may be published as the President may direct.

51. None of the elected officers of the Society shall receive compensation from the Society. An officer or delegate of the Society may be reimbursed for his actual expenses for travel and subsistence and other necessary expenses in attending meetings or transacting Society business, if specifically authorized by the Council.

Council: Duties, Authority, Meetings

52. The Council shall as need arises formulate and publish statements expressing the position or attitude of the Society on matters coming under the provision of Article II of the Constitution. On any subjects on which the membership has voted through a referendum, such statements shall be in conformance with the position thus taken by the Society. The Council may on its own initiative refer any such statements to the membership for ballot, and shall do so in case of valid appeal from its action, when taken by members in conformity with Article VII, Sec. 3, unless within two months from the date of receipt of said appeal the Council decides to adopt the position of the petitioners.

Referendum ballots when required by the above procedure shall be mailed only after the members have received at least one issue of the JOURNAL and SOCIETY AFFAIRS subsequent to the original publication of the proposals. Discussions of such proposals should preferably appear in these publications, but if deemed necessary by the Council or by the proponents brief summaries may also accompany the ballot. The final date for receiving ballots shall be five weeks from the date of mailing the same, and this final date shall be indicated on the ballot.

The right of appeal by petition, as provided and limited in Article VII, Sec. 3, shall lie against any action or position taken by the Council; provided that in the case of conflicting petitions or petitions opposing a referendum previously initiated by the Council but not yet completed, the Council shall determine the course deemed best for the orderly and effective management of Society affairs.

53. Meetings of the Council shall be held upon call by the President, or the President *pro tem*, or upon request by a quorum of the Council. Regular meetings may be held at such times and places as may be fixed by the Council. Except in case of emergency all members of the Council shall be notified at least 15 days in advance of the date and place of the meeting and, as far as practicable, of the principal matters to be acted upon.

54. In the absence of a quorum (six members) at any meeting of the Council, action may be taken subject to approval of a majority of the Council by subsequent ballot. A member unable to be present at any meeting may authorize another member (in writing) to cast his vote on any matter that has been presented for his consideration in advance of the meeting.

55. Absent members shall be notified promptly of action taken at meetings of the Council, even though a quorum may have been present, so that further ratification is not necessary.

56. Where prompt action is necessary, and in matters of routine or minor importance a majority of the members present at a duly called meeting of the Council can take action provided a quorum is present. The general policy, however, on important matters on which there appears to be serious division of opinion, will be to get the votes of absent members by mail before taking decisive action.

Between meetings of the Council, matters may be referred to it for decision by any officer, Council member, Section, or by petition of five or more members. Matters not previously discussed at a Council meeting will be opened to exchange of opinions for at least four weeks before a ballot is taken, provided that in matters of great urgency the President is empowered to call for an immediate vote of the Council. Such expressions of opinion as are received from Council members will accompany the ballot when it is presented to the Council for its final vote.

57. An executive committee of the Council, consisting of the President and such other members as the Council may select, may be designated for handling routine and emergency business of the Society.

Committees

58. Other committees than those provided for in the Constitution and Bylaws may be appointed by the President when the creation of said committees has received the approval of the Council. These may be either temporary committees, for some definite task, or standing committees, to serve until discharged or their successors are appointed. They shall consist of as many members and of such grades of membership as the President or the Council may determine. The members of all standing committees shall serve for the same term as that of the President by whom they were appointed, and until their successors are appointed. Members of all committees shall be appointed by the President, who shall, when possible, consult the chairman of said committee as to the other appointments. Temporary committees appointed for a definite administrative purpose are automatically discharged on the completion of their services. Temporary committees having charge of investigations may be discharged by the Council, at the request of the committee through its chairman, or on the initiative of the Council. Any member of any committee including the chairman, is subject to removal by the President with the consent of the Council, in the interest of efficiency, at any time during his term of office. The President may proceed to fill the vacancies thus created. No officer of the Society or member of the Council may serve on the Committee on Nominations for the biennial election, except that the Executive Secretary may serve as secretary of this committee without a vote.

59. No committee shall expend funds of the Society except as duly authorized by the Council. Committees shall be supplied with necessary stationery and other supplies through the Executive Secretary.

Finances

60. The fiscal year of the Society shall end on November 30.

61. The Executive Secretary's books shall be audited semiannually by a certified public accountant, at the close of each fiscal year and at midyear.

62. The Executive Secretary and all employees handling funds of the Society shall be bonded in suitable amounts as decided by the Council, at the Society's expense.

63. All bills against the Society shall be approved by the person or committee authorized to incur expenses before they are paid by the Executive Secretary.

64. The funds of the Society shall be deposited in a bank, approved by the Council, or invested in federal securities. This bylaw shall not be retroactive as ordering the sale of existing securities and reinvestment.

65. A budget showing estimated receipts and expenditures shall be prepared by the Executive Secretary at the beginning of each year. Upon approval of the budget by the Council, expenditures within the limitations of the budget may be made by the Executive Secretary without further authorization from the Council. Expenditures for any purpose in excess of the amount allotted in the budget, or for purposes not provided for in the budget, shall require special authorization of the Council, except that minor transfers from one appropriation to another may be made without such authorization. The budget may be amended at any time by action of the Council.

66. The Permanent Fund of the Society shall be held intact and only the income from it shall be spent for such special purposes as the Council may direct. In the absence of such direction,

the income shall accrue in a special reserve fund, subject to such dispositions as the Council may make. The Permanent Fund may be increased from time to time through contributions for that specific purpose, or through action by the Council.

67. Special funds donated or set up for special objects shall be accounted for separately from the general funds of the Society.

Meetings

68. A committee on Meetings shall be appointed by the President to consist of such number and such grades of members as he may think best. The chairman of this committee shall be a Member or Fellow and shall be appointed by June first of the current year. Such appointment shall be announced promptly in SOCIETY AFFAIRS.

69. The committee shall be responsible for the technical program of the meeting, but not for the program of the business meeting. It shall appoint or select speakers and topics and shall prepare a preliminary program and submit it to the Executive Secretary in time for him to have it printed and mailed to the membership. The Executive Secretary shall have the program printed and mailed to the members at least five weeks before the date of the annual meeting.

70. A member desiring to present a paper at the annual meeting shall notify the committee on the meeting, either directly or through the Executive Secretary, at least seven weeks before the date of the meeting, of the title of his paper, and shall at the same time submit at least a summary of the paper. It shall be optional with the committee whether such paper shall be read and discussed at the meeting, or read by title only.

Society Publications

71. Forestry students not eligible for Student or Junior Membership may be granted the privilege of subscribing to the JOURNAL OF FORESTRY at a reduced rate so long as they are bona fide students.

72. A member in arrears for dues on July 1 shall receive no more issues of the JOURNAL until his dues are paid. Upon paying his dues he shall be entitled to receive those issues of the JOURNAL that he has missed, if he so requests.

Sections

73. Every member of the Society in good standing, of whatever grade, is automatically entitled to membership in that Section of the Society in which he shall establish his domicile. The domicile of a member shall be his home or residence, unless his place of business and his professional affiliations lie within the territory of another Section, when, by declaration he may establish his domicile with said other Section for the purpose of Section membership. An individual can be a voting member of only one Section, but may become an associate member of any other Section.

74. Each Section shall confine its regular membership to individuals whose domicile, as above defined, is within its territory, but may admit associate members to the Section who reside elsewhere.

75. Nonmembers of the Society may become associate members of a Section but may not become regular members or serve as officers of a Section. This applies to former members of the Society whose membership has been terminated, as well as to those who never have been members.

76. The Executive Secretary shall furnish to each Section secretary near the beginning of each year the names and addresses of all members of the Society in good standing within the territory of the Section. He shall also notify the Section secretaries from time to time during the year of changes due to death, resignation, termination of membership, new elections, or transfer from one jurisdiction to another.

77. The Section shall report promptly to the Executive Secretary of the Society the results of elections of Section officers; the adoption of Section bylaws and amendments thereto; and shall report at least once a year on the proceedings of the Section.

78. The Section secretary shall furnish the Editor with copies of such papers delivered before meetings of the Section as seem appropriate for publication in the JOURNAL, unless the author desires to make other disposition thereof.

Section Chapters

79. A Chapter of any Section may be authorized by the officers or executive committee of the Section upon written petition of fifteen (15) or more voting members of the Section resident in an area where a strong local organization may be effected. The boundaries of a Chapter shall be established by the Section on recommendations from the members concerned.

Chapters shall hold at least one meeting each year to retain their authorization. Open meetings are specifically authorized.

The officers of each Chapter shall include a chairman, a vice chairman, and a secretary-treasurer, who shall be voting members of the Society, serving concurrently with the officers of the Section, and elected by the members of the Chapter. A current list of the officers and the members of each Chapter shall be on file with the secretary of the Section.

A Section is authorized to appropriate funds to the Chapter for the conduct of its business.

Actions or recommendations of a Chapter on Society matters will be transmitted to the Council with the recommendation of the Section. The Section shall have the right to rescind the authorization of any Chapter and to terminate its existence.

Subject Divisions

80. The purpose of Subject Divisions of the Society shall be to provide an effective means of considering various phases of forestry, supplementary to that provided through Society or Section committees, and not to create vocational groups within the Society.

81. Membership in Subject Divisions shall be open to all members of the Society, the basis of membership being interest in the subject and desire to participate in the work and discussions of the Subject Division.

82. Subject Divisions shall be governed by the same regulations, prescribed in the Constitution and Bylaws, as are committees of the Society with respect to Society policies. They shall not issue to the public any statements or reports, except (1) through the Sections of the Society, if approved by said Sections, and in conformance with adopted policies of the Society, or (2) through the Council or ballot of the members if involving controversial questions requiring Society approval.

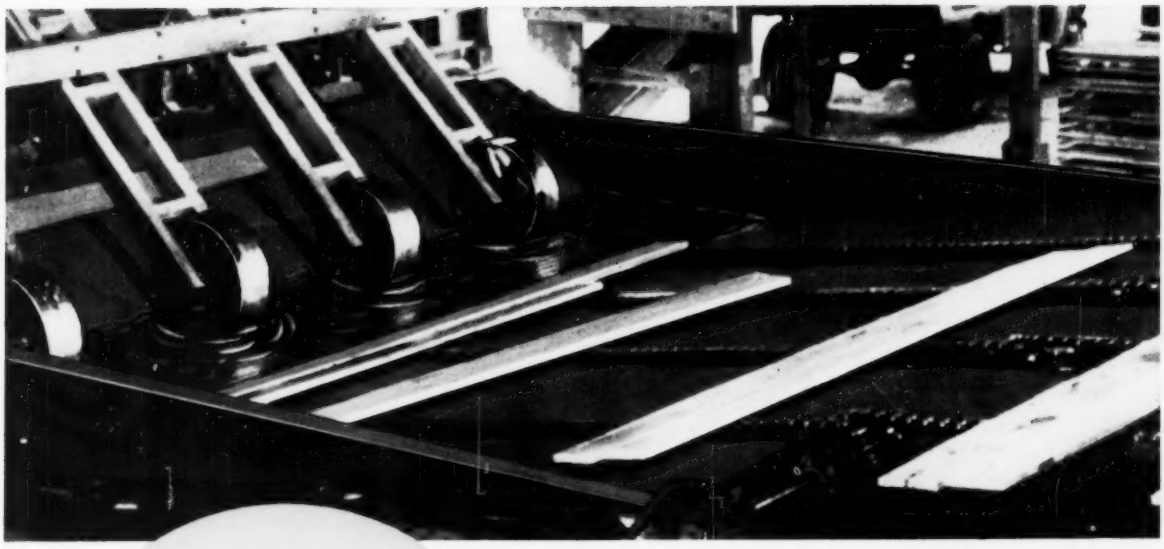
83. The same freedom of discussion is permitted to Subject Divisions as to Sections and the Society at large, and the same principles of publicity through the JOURNAL apply to Subject Divisions as to individuals, Sections, and the Society.

Bylaws and Amendments

84. All Bylaws shall become effective upon adoption unless otherwise specified by the Council.

85. All Bylaws shall be published in SOCIETY AFFAIRS or otherwise made available to the members, as soon as practicable after adoption.

86. The Executive Secretary shall notify all members, through publication in SOCIETY AFFAIRS or otherwise, of the adoption of any amendments in the Constitution or Bylaws.



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Permatox 10-S contains 35% technical sodium pentachlorophenate and 65% borax, both highly effective chemicals for control of mold and sap stain. Authorities say that Permatox 10-S represents the most efficient of the sodium pentachlorophenate-borax mixtures for general commercial use.

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Send copy of your Bulletin 51-S to
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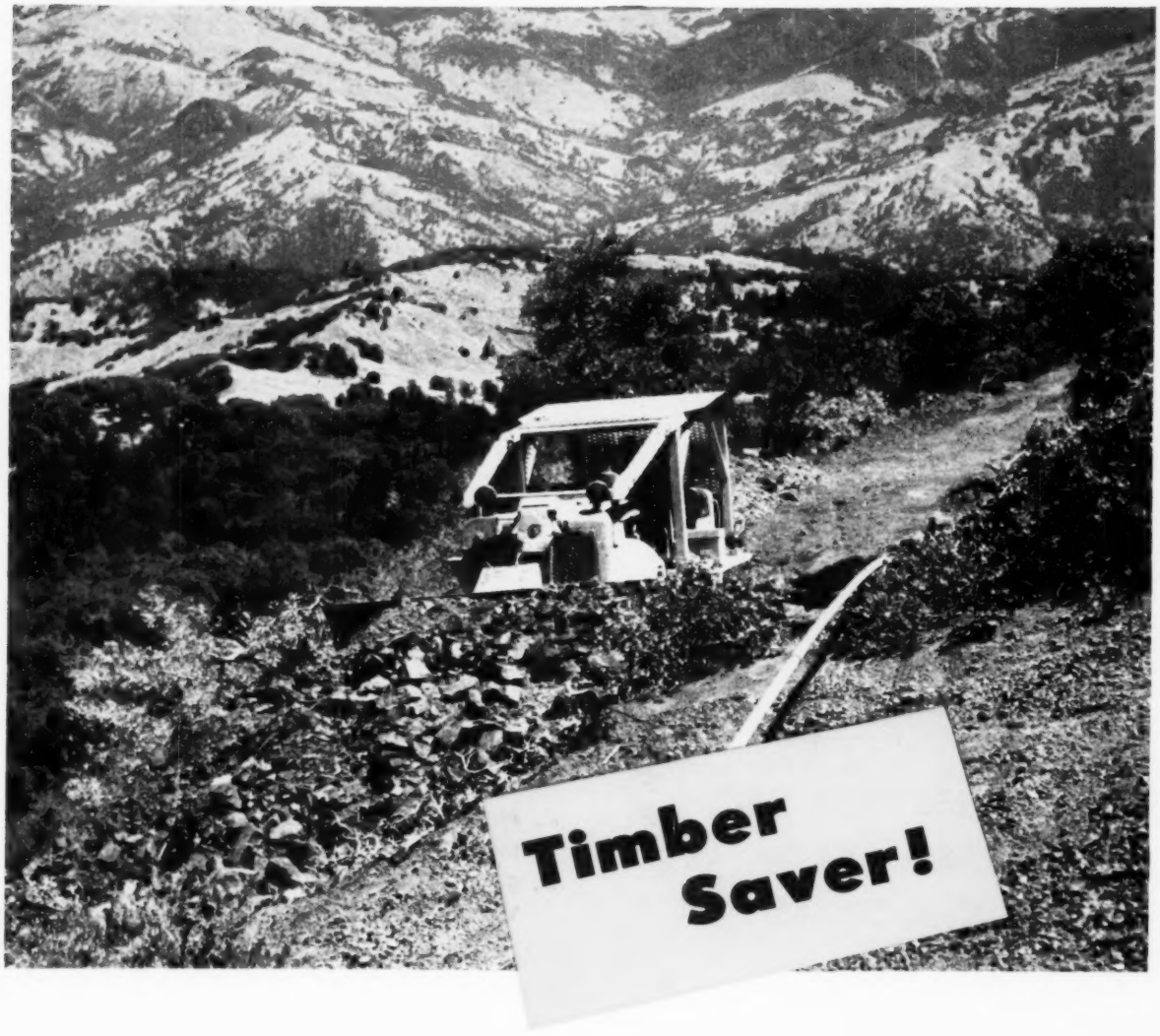

This is one of the Cat* D7 Tractors with No. 7A Bulldozers owned by the California State Division of Forestry. Forest Ranger Charles P. Campbell says: "We feel these 'dozers have saved many acres of valuable timber. One takes the place of 100 men fire fighting. The service we get from our Caterpillar Dealer is superior."

Fire fighting is just one of many jobs for these versatile yellow 'dozers. They've got 160 miles of road and firebreaks to maintain. Here this D7 team is building a new road to Iron Peak Lookout, 4,350 feet in elevation.

That's rocky stuff it's *rolling* along—tough to handle. But the blade, of heavily reinforced construction welded into a rigid one-piece unit, is *extra tough*. The cutting edges, reversible for extra service, and the replaceable end bits, are hardened for longer wear.

You'll get a *lot* of work with *little* down time at *low* cost from this slugger. For maximum performance, blade capacity is matched with tractor HP. And ease of adjustments and handling, *plus* excellent operator visibility, contribute further to big production.

Your Caterpillar Dealer backs this unit and *all* Caterpillar-built equipment with fast, on-the-spot service. Ask him to *show* you how it can outwork any competitive 'dozer. He'll be glad to demonstrate!

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